Broadcasting Education
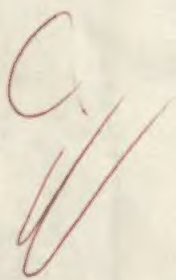
Edited by
S. Venkataiah

For emphatic dissemination of knowledge, advanced communication technology is felt essential on the part of both developed and developing countries. Formal educational broadcasting was started by BBC in 1924. The Australian Broadcasting Company took an attempt for school broadcasting in 1929. The use of radio in education developed very fast in USA in the thirties. The FSBS devotes more than one-half of its radio output to educational and cultural broadcasts. Now almost all the countries world over have separate arrangements for educational broadcast departments.

This book highlights importance of broadcasting in education. Broadcasting education, educational radio and television, media of mass communication, strategic roles for broadcasting, satellite instructional television experiment, listening and reading, social functions of press; and future of educational broadcasting like topics are competently discussed in this book.

BROADCASTING
EDUCATION

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Edited by

S. Venkataiah

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Preface

The *Encyclopaedia of Education for the 21st century* has been created to provide access to information about contemporary topics in education. Practitioners and students at all levels in education have a need to know what is happening today, in addition to historical treatments within the literature. One of the significant features of each chapter is the inclusion of specific programmes, projects and activities so that the researcher can locate the literature as they desired.

The encyclopaedia will be of use to graduate and post graduate students in education and to practising teachers, administrators, librarians and planners.

The contents of this encyclopaedia is addressed to administrators, planners and educators working in the field of education and training with a view to stimulating interest and attention in the areas of education and its related fields. It is also addressed to a growing number of teachers and instructors who will be practitioners in education and who will need to be acquainted with the modern aspects of educational practice and development for the twenty first century. Many ideas, generalisations and discussions presented in this encyclopaedia should also prove useful to employing organisations committed to provide training facilities within their establishments—leading to effective mutual participation by institutions and organisations.

As education is the only device to mould the contemporary society in proper setting and to train the people to meet the current challenges, the present project is designed. With this changing scenario in different spheres of society, the educational developments are portrayed in the present work. Efforts are made to incorporate latest research in the concerned field.

We are grateful to all learned authors, whose writings are cited or substantially made use of in the present work. We are also thankful to all those who have helped us one way or other in compilation of the material. Last but not the least we are deeply beholden to Mr. J L Kumar, Managing Director, Anmol Publications Pvt. Ltd., New Delhi for undertaking the publication of the work.

Editor

1

Broadcasting Education

The developed countries are more advanced and well-equipped in respect of mass media than the developing countries and this is due to the poor economic condition and technical known-how on the part of the developing countries. Now the word is being confronted with the explosion of information and knowledge. For their dissemination, advance communication technology is felt essential of the part of both developed and developing countries.

The British Broadcasting Company was formed in the United Kingdom in the year 1922. Formal educational broadcasting was started in 1924. Since 1926 separate leaflets were prepared for the broadcast programmes as support materials. The British Broadcasting Company which was redesignated as the British Broadcasting Corporation received its first Chapter in 1927 wherein the triple aims of radio were listed, viz., information, education and entertainment. Then a through investigation was conducted into the effectiveness of school broadcasts. The findings of which led the authorities to reorganize the system and as such the Central Council for School Broadcasting was formed in the year 1929. Again this body was reformed in 1947 and appeared in the name of the School Broadcasting Council. The British Broadcasting Corporation prepares educational programmes for the schools on the request of

the School Broadcasting Council. The central organisation has the S.B. Council for the UK with related councils in Scotland, Wales and Northern Ireland. The council on their part formulate the policy of broadcasting. Both the BBC and the Councils work in close collaboration keeping in touch with the School Broadcasting Departments. The Chairman and nine other members of the UK Council are appointed by the BBC and the remaining thirty-five members are nominated by national educational bodies. The Councils work through Programme Committees comprising of head-teachers, teachers and advisers. There are three Programme Committee-I is for the children upto 8-9 age-groups, Programme Committee-II is for 8-9 to 12-13 age-groups and Programme Committee-III is for 12-13 to 18 age-groups.

The Committees stated above are concerned with the objectives, suitability and nature of the programme series of their clientele. The School Broadcasting Council meets twice a year and the Programme Committees meet thrice a year. The Secretary is the head of the Council. There is a team of education officers recruited from different parts of the country having a depth of knowledge about the requirements and problems of the schools as well as the potentialities of the broadcasting. They visit schools regularly, organise teachers' meeting, discuss with the students and teachers at the utilization end and review the policy defitting for them. The overall control and supervision of the educational broadcasting rest with the Controller of Educational Broadcasting of the BBC assisted by the Assisted by the Assistant Controller and the Head of the Educational Broadcasting Services. The duration of the broadcast programme is normally from fifteen to twenty minutes adopting different formats. Notes for teachers are there in all the series of broadcasts. For pupils, some materials also are developed.

Twenty BBC local radio stations are in operation in England. Each of them broadcast locally devised programme. There is an Education producer in each radio station who takes care of providing programmes for the schools. He works closely with local educational institutions in respect of getting resources for programme production. The programmes are based on local interests and needs. They are made usually in collaboration with local people and getting advice from the advisory Panels composed of local educationalists.

Australia

It was the year 1929 when the Australian Broadcasting Company took an attempt for the School Broadcasting. The Planning Committees constituted with the representatives of the schools assisted the company in 1931 to find out ways for the establishment of continuing School Broadcast Service. As a result of which the educational broadcasts for secondary schools began. The Australian Broadcasting Commission was established as a National body in 1932. Along with disseminating information it accepted the responsibility of educational broadcasting and pursued the development of the system. The Federal School Broadcasts Advisory Committee was born in 1936.

Initially, the cost of producing and distributing broadcast booklets to schools were borne by the ABC. In 1939, the State Departments of Education took the responsibility of producing broadcast booklets. By the end of 1945 some states rendered assistance to the schools desirous of purchasing receiving sets. The organisational structure for educational broadcasting became flexible. The Federal School Broadcasts Advisory Committee and different State Advisory Committees, both of them, included senior educational administrators and eminent educationlists.

The concerned sub-committees in each state included members having expertise in the content and teaching of various subjects. Since 1949 liaison officers were appointed indifferent states with a view providing a vital link between the schools and ABC. They has to supply information on educational broadcasting and programmes to schools and to convey the reactions of the schools to the ABC. By 1950, all states took up the responsibility of providing broadcast booklets to the schools. A conference of educational authorities was organised by ABC in the vear 1946 to explore the scope of radio in education. As decided a number of constructive suggestions were accepted for the development of educational radio.

As a service to the community the Australian Broadcasting Commission prepares radio programmes for the schools under School Broadcasts. The programmes are made in consultation with the curriculum planners, educationists and practicing teachers. Programmers are not imposed on schools and also there in no official obligation upon teachers to use them. Since education in Australia is a state responsibility, in each of the capital cities of the six states the Australian Broadcasting Commission has a section of its Education Department.

Each section used to maintain close liaison with state educational authorities. The programmes are provided as to the need of the schools in that state. There is an Education Advisory Committee consisting of member representatives of the main educational bodies of the state. The committee guides and assists each state section in its work and advises the ABC on State educational policy matters along with trends in education philosophy. The Director-General of Education acts as the Chairman. This Committee further nominates Consultative Committees to advice on the matters relating to the need of the programmes in the specific

areas of education, production of programmes and assessment of the programmes on completion. The subject-matter to be included is decided in consultation with the teachers and subject experts. The Federal Education Broadcasts Advisory Committee advises the ABC on the broad educational policy matter. The committee is formed with the Director of Education of the ABC, Chairman of the six State Committees and a representative of the Australian Department of Education. The radio programmes do not substitute the teacher. They are used in conjunction with other resources.

Every school, at the end of each year, receive information about the coming year's programmes which differs from state to state. Most series are accompanied by teachers' note and many by illustrated pupils' activity booklets. Teachers' notes are most important for all teachers as these highlight the educational purposes of programmes alongwith the outlines of their contents. Apart from their original and primary value in relation to the broadcasts, many of these publications have a continuing value.

With a view to achieving an essential cumulative experience by following the whole series in order, some programmes are planned in series. The rest are planned in such a way that gives independence to the teachers in the selection. The teachers can select individual programmes or groups of programmes as per the requirement for their scheme of work if they do not desire to utilize the whole series transmitted regularly throughout the year on a number of topics. Again, the teachers are all-owned to use brief extracts from recorded programmes which serve as stimulus at some crucial stage of a project. The programmes broadcast for the schools are more 'open-ended' style which give enough scope to the students to draw their own conclusions on

the issues raised in the programmes. All the above programmes are not meant for all the children. The broadcasts differ in class-wise. In order to facilitate the utilization of programmers to a greater extent, repeat programmes are broadcast over radio.

United States of America
The use of radio in school education developed very fast in the United States of America in the thirties. The first broad-cast for class-room was then the Music Appreciation Hour prepared and broadcast by National Broadcasting Company. Another most significant early contributions was the 'American School of the Air'. This was service of the Columbia Broadcasting System. There were daily programmes in the subjects like science, music, history, literature and current events.

There were 202 radio stations operating in the educational institutions prior to 1936. Gradually, the number came down during 1970. The reasons of falling down were the apathy of educators towards radio and the fluctuation in the financing by the legislatures and school boards. Further, most programmes used in the class-rooms before the Second World War were produced by the Commercial Broadcasting Organisations instead of educational institutions. The revival of educational radio took place by the development of FM broadcasting the reservation in 1945 by the Federal Communications Commission. This Commission exercised the power to issue licenses to new stations and cancelled the licenses of the existing ones. In order to make the broadcasting fair it also formulated the ethics and guidelines.

The National Association of Educational Broadcasters (NAEB) is an organisation which has many educational stations. Their headquarters are in Washington, D.C. The radio division of this organisation is directly concerned with the problems and applications

relating to educational radio. Another national organisation is the Corporation of Public Broadcasting. This gives direct financial and programming assistance to qualified educational stations. There is facility for tape network services, i.e., exchange of tape-recorded educational programmes in the U.S.A. The National Educational Network is one such network functioning in the United States. This is a project of the NAEB which selects and distributes outstanding educational radio series produced by member stations. About other networks, mention may be made of the Eastern educational Radio network and special two-way networks for professional education which exist in several states.

It is not easy to give account of educational broadcasting in the USA as the larger and more important stations and networks are private commercial enterprises. Again, the educational broadcasting is largely a matter of private management. But quite a good number of educational programmes are transmitted in the United States and Latin America by the colleges and universities even by municipal and state-owned stations. The Public Broadcasting Service has increased the amount of educational broadcast is not only taken as a support to the teachers but also as an aid for eradication of illiteracy and imparting education to the rural folk in the matters of health and hygiene, agriculture and social superstitions.

Canada

The Canadian Broadcasting Corporation is the principal broadcasting organisation in Canada. It has one main AM radio network in each language along with small FM networks and shortwave transmissions. The Canadian Broadcasting Corporation has thirty-eight principal radio stations and 324 low power relay transmitters together

with fifty-two privately owned stations. The Federal and the provincial organisations are jointly responsible for the school broadcasts in Canada. The liaison of the provincial departments of education with the CBC is kept through their appointed heads of school broadcasting. On an experimental basis school broadcasts were operating in the early part in various places of Canada. Being motivated with its success, the CBC moved to set up a National Advisory Council on school broadcasting with representatives from educational bodies. The Council, when set up, worked out a pattern of broadcasts for all over the country. The CBC has a school broadcasts department under one supervisor of school broadcasts. With the advice of the Advisory Council, the CBC gives a series of national broadcasts during a year. The provincial authorities get the rest of the school broadcast time. Normally the duration of each programme is twenty minutes. The educational producer is answerable to CBC with regard tot he quality and effectiveness of the programme. Similarly, the educational director is responsible to his provincial department of education in respect of the content of the programmes.

France

The French State Broadcasting Service (FSBS) devotes more than one-half of its radio output to educational and cultural broadcasts. Education through radio is given to the children of primary as well as secondary grades. Apart from this there are refresher courses for teachers and courses for the students of the university level. The committee appointed for radio broadcasts advises the central administrative body on programmes, schedules and when needed it plans future projects and makes proposals. The use of radio for traffic control on the national scale is very much effective during the late summer, practically when children travel home from school vocations.

Japan

School Broadcasting in Japan starting from the radio school programmes, is 44 years old. These programmes cover kindergarten, elementary school, middle school, high school, and special education school children. These programmes are broadcast everyday from 9 A.M. to 4.30 P.M. except Sunday. But on Saturdays the broadcast only once a week for a duration of 25 minutes only. The elementary school broadcasting programmes can be classified into two categories; a semi-governmental system called Nihom Hoso Kyokai and private broadcasting systems. The NHK has a nation-wide network for educational programmes of both radio and television. There are also several private broadcasting systems which produce programmes for elementary school education.

In regard to the production of education programmes, NHK has various committees like Central Advisory Committee on School Broadcasting, Script Review Committee, Monitors' Committee. The experts and specialists outside of NHK are taken as the members to these committee. These committees look after the planning, production and utilization aspects of the educational radio programmes like relevance of the programmes contents, nature of programmes to be produced, process of production of programmes and the efficacy of teaching through radio, etc. Besides, there are many specialist staff in NHK. The procedures followed and the methods adopted in the organisation of educational programmes by private broadcasting systems are almost the same as that of NHK's. The NHK has the provision of yearly timetables of educational programmes, teacher's guides and text-books for pupils which are available with minimum charge. Apart from this, NHK provides subsidies to the teachers' organization for study of school broadcasting. It also

assists for holding of various seminars and meetings and carries our research and survey on the educational broadcasting programmes by means of its own research institute. Since its inauguration in 1933, the educational broadcasting in Japan has been playing a supplementary role for class-room teachers. In other words, the educational broadcasting does not work as a substitute of a good teacher at the elementary level but supplements the teachings of a good teacher. However, experts on educational broadcasting recognize another supplementary role that it provides not only better teaching materials for schools but also opportunities for on-the-spot training of teachers. Teachers can learn much for themselves by utilizing educational programmes for their pupils.

Malaysia

The work relating to the production of educational radio programmes in Malaysia is carried out by the staff of School Broadcasting Service. The preparation and production of programmes is a collective responsibility of educationalists and broadcasters. The School Broadcasting Committee consists of educationists like members of Federal Inspectorate, lecturers of universities and colleges and heads of schools. The type of programmes to be produced is decided by them. There are various subjects panels under this committee which examine the radio scripts and quality of the radio programmes broadcast for schools. The educational programmes are produced and broadcast in four languages, viz. National Languages, English, Chinese and Tamil. Programmes are broadcast on four days a week, i.e., from Monday to Thursday. They are transmitted through three Radio Malaysia Networks, i.e., Blue, Green and Red. The Blue Network is for the National Schools, Green for the National Type schools and Red Network for the National Type schools.

Besides the normal transmission, special programmes are also broadcast for students and the public during the school holidays. These special programmes include quiz for schools and English Language of BBC recordings, etc. These programmes are entertaining as well as educating. All the programmes, except for the BBC English, are locally produced by producers drawn from the Malaysian Education Service and trained locally/overseas. The Teachers Notes containing summary of programmes and the work to be done by the teachers before they are listened to by the children and the follow-up activities to be conducted are sent to the teachers every term. The Teachers Notes are prepared and complied by the staff of the Schools Broadcasting Service. Seminars are held from time to time on the utilization of radio broadcasts in educational institutions.

Sri Lanka

There is State Broadcasting Corporation named as Sri Lanka Broadcasting Corporation which has a special division called the Education Service Division. This special division handles the programmes relating to educational broadcasting. A joint committee comprising of Ministry of Education and Sri Lanka Broadcasting Corporation officials lay down policy matters and priorities relating to educational broadcasts. Subject Sub-Committees at the Curriculum Development Division of the Ministry of Education assist the producers and script writers in selecting topics and contents of programmes to ensure their relevance to syllabus requirements and grade level. The programmes produced for schools are based on school syllabi and are accompanied by support materials for the teachers. The programmes are prepared for primary school students. Junior Secondary School students and out-of-school children. The subjects on which the education programmes are made for the

primary schools cover Music and Movement in Sinhalese
for the Grades 1 to 5 and English language for the grades
3 to 5. Junior Secondary School starts from Grades 6 to
10. The programmes for the Junior Secondary School
students are on different school subjects. The duration of
the programmes is half an hour. Apart from these there
are general programmes for those seeking out-of-school
educational opportunities beyond the Senior Secondary
level. Morning transmission of educational programmes
covers four hours per day. About 60 programmes are
transmitted per week including repeat programmes.
Evening transmission is spread over two hours.

Thailand

It was the year 1953 when the Council of Ministers of
Thailand approved the recommendation of the committee
specifically appointed with the ministry to study the
possibilities of combining technical training in radio skills
with an educations broadcasting service. The Ministry of
Education appointed a very broad committee expressing
its conviction that educational radio belongs to all
branches of education. On the 1st January, 1954, the new
station began to broadcast home service programmes for
the school children, teachers and the general public from
6 to 8 P.M. on all the days of a week except Sunday
when the timing is from 4 to 8 P.M. After two years the
weak signals were replaced by strong signals and the
coverage was increased. As such the wide coverage
encouraged the Ministry to supply school broadcasts,
mainly as a help for poorly equipped schools situated in
rural areas.

There is one main radio station in Bangkok with
nine regional stations in the provinces These regional
stations broadcast the same educational programmes
which are produced in the main station in Bangkok. The
educational radio station in Bangkok is under the

management of Educational Information Division, Office of the Under Secretary, Ministry of Education. It was decided to begin with the subjects like English which was offered widely as a second language in Thai schools, music and social studies. In 1958, the first series of school broadcasts went on the air to a limited schools. In 1959, the Ministry decided to make the service available to any school in Thailand that could receive and wished to use broadcasts.

Along with the radio broadcast on English, Music and Social Studies, two thirty-minute programmes for teachers were added as well as a daily half-hour of education and entertainment to be heard during the children's lunch hour. The programmes were evaluated and accordingly there was a continuous process of revision and improvement. The officials of the educational services consider it a fact of life for school broadcasts.

The school radio programmes are broadcast according to the fixed schedules from 9 'o' clock in the morning to half-past two in the afternoon with the intention of giving facility to the schools to arrange the programmes in order to conform with the class schedules. The broadcasting agencies provide programme schedules, teachers' hand books and other related materials to the user schools much before the programmes are broadcast over radio. These facilitate the schools to integrate the radio programmes in the class schedules. Policy determination for the educational broadcasting is the concern of whole ministry. There are three very important working committees. These are assigned to three areas of school broadcast viz., Music, Social Studies and English.

The members of the committees are chosen mostly from among teachers who are expert in the subject-matter

and whose advice and suggestions are taken into account in planning and producing the programmes. The committees take basic decisions regarding the curriculum to be taught, the assignment to be given to the members in writing of scripts and preparation of teaching aids. After the work is done, the materials are placed before the concerned committees for criticism and revision. The producers take them for production after the same are approved by the committee.

At the beginning of the academic session, officials from the ministry go out to speak to educational officers and teachers in the area where the programmes are heard. Conferences including regional are held in various parts of the country for the educational officials, supervisors and teachers. Summer course is held for the teachers using the English radio broadcasts. Representatives are sent to assist the teacher-training institutions in imparting the techniques of using radio in the class-room. The officials from the division of educational information and members of programme working committees advise the teachers in the use of programmes in course of their visit during the school year. The school broadcast supervisors and the teachers using the broadcast write the evaluation sheets.

Bangladesh

Educational broadcasting in Bangladesh, as in other countries, aims at the improvement of school education. There are six independent radio stations in the country. There is a special cell of education broadcasting in Radio Bangladesh. This cell produces some curriculum-based programmes for school students in collaboration with the teachers and the Ministry of Education. The programmes mostly on science, language, co-curricular subjects, are broadcast daily in the evening for a duration of half an hour except sundays. Non-formal education programmes

in the areas of agriculture, rural development, population control, family planning, health and hygiene, religion, etc. are also broadcast regularly from Radio Bangladesh.

Tanzania

In the year 1954, broadcasts to schools were first started in Tanganyika. Due to small transmitter, a few schools could utilize the programmes. Within two years a bigger transmitter was in operation and the consequence was all the schools throughout the country could make use of the broadcast programmes. In 1960-61, there were 360 primary schools listening approximately but today there are over 9,000 schools getting the benefit. After the introduction of the Universal Primary Education in 1974, every year the number of listening schools is being increased. In the beginning, the broadcast programmes were intended for M.E. Schools. Since 1959-60, afternoon broadcasts were started for secondary children. It is revealed from research that these broadcasts are also popular among primary school dropouts. Gradually, it became necessary to increase the print materials for the use of primary school teachers on their request for assisting in their own advancement.

Prior to July 1977 and that too after independence, School Radio Broadcasts were administered by the Ministry of Information and Broadcasting through the Director of Radio Tanzania. With the formation of a Media Education Unit in the office of the Commissioner for National Education, School of National education, actual production of programmes is done by Educational Broadcasters from the Ministry of National Education. The technical side of production is done by Radio Tanzania in their own studios. Transmission is done by Radio Transzania. The Ministry of National Education prepared and distributes support materials to the schools. After a meeting was held between the officials from the

Ministry of National Education and Radio Tanzania Das Es Salaam, a School Broadcast Committee was formed in the year 1977 with the members from the National Education, Media Education Unit, Directorates of Preliminary and Secondary Education as well as Teacher and Adult Education, Institute of Education and Adult Education and Head of School Broadcasts along with the members from the Radio Tanzania. Sub-Committees were formed for actual planning of the programmes in conjunction with the Primary, Secondary and teacher Education Division of the Ministry of National education. The Sub-Committees meet once every month but the School Broadcasts Committee meets twice a year to approve the plans placed by the Sub-Committees.

The aim of primary school broadcasts is to bring to the required level the knowledge a primary school leaver acquires after seven years of education. It was envisaged that because of dearth of relevant text books and competent teachers required, school radio can do a lot in fulfilling the gap. Therefore, the programmes strictly follow the curriculum. Four programmes are broadcast for two hours having twenty minutes duration in an average per school day and six days per week. In all 576 programmes are broadcast each school year. With regard to secondary school broadcasts, two programmes are broadcast for an hour in a school day and that too 5 days a week. In all 240 programmes are broadcast each school year. The secondary broadcasts are also syllabus-based programmes. As to the need of the curriculum some BBC transcriptions are also used to overcome the difficulty of lack of producers and good script-writers.

Since the teachers were not aware of organising radio listening classes, seminars on how to conduct radio lessons were organised in five Regions in 1978. Teachers showed interest in seminars and found them very much useful. Some more such seminars were organised in the

following years. Script-writers workshops were also organised to prepare the teachers for contributing good educational scripts with a view to improving the broadcast programmes.

School broadcast programmes at the national level

The Indian Broadcast Company opened its first broadcasting station in Bombay in July 23, 1927. Thereafter Calcutta and Madras stations were opened. The Indian Broadcasting Company was redesignated as Indian State Broadcasting Service in 1930. Again in 1936 it was known as the All-India Radio. Bombay was the first station to start School Broadcast Programme in 1929 which was occasional in nature. The Madras station took in up in April 1930. But the Calcutta station had its regular school broadcasting programme since November, 1937. The duration of the programme was for 30 minutes and that too twice a week. It was the year of 1938 when the authorities of All-India Radio gave more emphasis on Educational Broadcasting.

All India radio is the only broadcasting agency in India having 88 broadcast station located at different states. The Central office is located at Delhi with one Chief Producer for Educational Broadcasts who looks after the educational broadcasting network. Out of 88 broadcast stations there is provision for production of educational programmes in 44 stations. These stations produce the educational programmes and relay them as wall. There are stations of All-India Radio which neither originate nor relay them. Primary broadcasts are enrichment programmes the duration of which varies from 15-20 minutes. In some states they are relayed for 3 days a week and income 5 to 6 days per week. The secondary school programmes are syllabus-based and are broadcast for a duration of 15-20 minutes on all days of a week for the Classed VI to X.

During Summer Vacation the educational programmes cease to operate. But in some states the primary programmes continue and enrichment ones. Programmes for teachers are broadcast from almost all A.I.R. stations. In 1958, Kerala had broadcast programmes in support of Correspondence Course for the teachers teaching Science to the children of Standard V. Apart from the above certain organisation produce programmes which are relayed by the A.I.R. stations. The Central Institute of English and Foreign Languages. Hyderabad prepares radio lessons in English for school children which are broadcast from different stations for a duration of 20 minutes.

The State Institute of Education, Gujarat produces English lessons under the caption "Teach English- learn English"' for her school teachers which are syllabus-oriented. The two lessons are broadcast once a week in each case having the duration of 30 minutes. A Radio Pilot Project—Teaching, Hindi as first language was taken up in the year 1979-80 by the Central Institute of Educational Technology , National Council of Educational research and Training, New Delhi for the children of 483 schools in Standard I, II and III of Jaipur and Ajmer of Rajasthan for a period or four years . The programmes were broadcast by A.I.R. station Jaipur.

The All-India Radio station having the provision Educational Broadcast Unit has normally the technical know-how persons like a Producer a Production Assistant and a Script-writer for the purpose of production of programmes. The producer decides the topics to be covered for different grades and on various subjects of the secondary school in consultation with the Board of Secondary Education and in some cases the State educational authorities. After finalisation they are put up before the members to the Consultative Panels constituted by the All-India Radio for ratification.

These Panels sit once or twice a year with the members from the Educational Department, Directorate of School Education Board or Secondary Education State Council of Educational Research and Training/State Institute of Education, Educational Technology Cell, Inspectorate of School Education Headsor Schools Educationists and personnel working in the field. After the Topics are finalised the station takes the responsibility of their production and transmission. The school at the state sector utilize the broadcast programmes and send the feedback for their improvement as to the need of the children.

School broadcast programmes in Orissa

The Cuttack Radio Station was established in the year 1948 after the formation of the All-India Radio in 1936. Since 24th October,1960 ,It started producing School Broadcast Programmes for the Students of Secondary School outlined for different subjects and for various grade levels. These programmes cater to the needs of the school children ranging from class-VI to Class -X. The objectives of this programme are to supplement and enrich the class teaching. For presentation of the programmes different formats viz. dramatization featurisation discussion narration question answer quiz interview and debate are adopted depending on the content of the topic.

The broadcast timing of the programme is from 12.30 P.M. to 12.50 P.M. everyday for a duration of 20 minutes. But on Sunday the timing is from 7.40 A.M. to 8.A.M. for the same duration. After the establishment of two more radio station one at Jaipore and another at Sambalpur the production of School Broadcast Programme was shared among the three. Accordingly Sambalpur station produces programmes for Class-VI and the remaining station in their turn broadcast the

same. Since Cuttack is the parent station programmes meant for Classes-VIII, IX and X are produced three and the other two station relay them. Apart from the School Broadcast Programmes discussed above the three radio station produce and broadcast independently the educational; programmes for the students or primary classes which do not follow any syllabus.

The duration of primary school programmes is 20 minutes from 7.40 P.M. to 8.00 P.M. everyday except Sunday . The programmes for secondary school teachers are broadcast every Saturday between 8.30 A.M. For duration of 15 minutes with a view to keeping the teachers abreast with the changes in the educational methodology and innovation required for their professional competency.

The Planning is done in a systematic way in respect of Secondary School Broadcasts. This is done for the whole year well in advance. The A.I.R, Cuttack station involves the Board of Secondary Education orissa in planing the programmes and as such it invites the topics from the Subject Committees of the Board to be covered for different grades of pupils and on various school subjects. Then the same are place before the Consultative Panel for approval. The Consultative Panel constituted by the A.I.R. Cuttack has the following types of members— Station Directs and Educational Producers of three radio station viz. Cuttack, Sambalpur and Jaipur, Secretary Education Department or his nominee, Director State Council of Educational Research and Training or his nominee, president Board or Secondary Education or his nominee officer in Charge Educational, Technology Local Inspector of School some experienced Heads of Secondary Schools, educationists and personnel of voluntary organisation working in the field Over and above some are recruited as invites who are involved in the work. This Committee meets once a year After

finalisation of the topics the concerned A.I.R. stations take the responsibility of producing and transmitting them for the receiving schools.

The A.I.R., Cuttack station also brings out support materials in the form of a booklet for the teachers along with the Programme Schedule. The booklet covers the broadcast topics for different grade levels, the objectives of each topic and the content in a nut-shell along with the teaching points. This also bears the departmental circular of the State Government giving emphasis on the utilization addressed to the field officers from time to time together with a model evaluation devised by Radio Station for giving feedback by the receiving schools. Prior to the beginning of the academic session the materials are supplied by the Radio Station to the schools those who register their name earlier.

The role of educational technology cell
The Educational Technology Cell which came into being in Orissa in the year 1974 has a major role to play at the utilization end. This Cell is working for the development and adequate utilization of S.B. Programmes since its inspection. Since there was no organised institution at the state level to work for the adequate utilization of S.B. Programmes, it took up the task seriously and in a regular manner. With a view to approving the consumer schools with the benefit of the utilization of School Broadcasts and to take initiative in the matter, the E.T. Cell has so far organised a number of meetings and conferences of the Heads and teachers of the secondary schools as well as the Training Schools and the field officers responsible for the school education. The E.T. Cell organised training courses for the in-service teachers for effective and adequate utilization of school broadcasts. It also organised workshops for the teachers for contributing good educational scripts for quality

broadcast. Evaluation and feedback are no less important than production and utilization. For the improvement of programmes and for wide acceptance by the utilizing schools, the E.T. Cell conducts evaluation of the programmes and sends feedback to all concerned.

For the last twenty years, educational broadcasting in Britain has enjoyed a relatively stable and comfortable existence. That security and tranquaillity is quite suddenly being shattered as a result of major technological and political developments. New information technology is going to change educational broadcasting in ways that were inconceivable only five years ago. What exactly these changes will be is not easy to predict, but fundamental changes there certainly will be.

A great deal of publicity is being given to high technology in education, particularly microcomputers and video-discs. There is a away from the effects of equally powerful low-cost technology. Audio recording is not new in education, nor glamorous, but the development of cheap, easy-to-use audio-cassette equipment has already had a major impact on the use of educational broadcasting, both in schools and adult education.

For many years, schools have used tape-records to record school radio broadcasts. Nearly all schools now have audio recording equipment. Recording is ubiquitous, and the ability to record has been much enhanced by the introduction of combined radio-cassette machines. Recording became even more significant in 1983 when the BBC switched secondary school radio broadcasts from afternoon to night-time transmission. This move, resulting from the wish of the BBC Radio 4 Controller to offer popular programmes to a wider audience on the VHF (FM) band-width, requires

recordings to be made in schools automatically at night-time using time-switches. This change has been implemented despite initial opposition from the BBC's own Educational schools had electronic time-switches, and night-time transmission requires local education authorities to spend over 200,000 on extra equipment. It entails centralised planning of recordings in advance and a pilot showed that there was a high failure rate in overnight recording due to teachers not correctly operating the automatic recording equipment.

The BBC radio producers, the Educational Broadcasting Council and the local education authorities all thought that the move would reduce the use of radio in secondary schools. At the time of writing, it is not known whether these predictions will come true. However, in Norway and Sweden, an alternative system works very effectively. Most local education authorities have set up an audio-visual unit in vision programmes are recorded off-air by a full time technician in which they request the programmes that they need. The service is relatively cheap to run and there is virtually no failure rate in there is no real need to broadcast radio at all since all programmes could be mailed on tape at very low cost to the local centres.

At the Open University, the impact of audio-cassettes on radio has been dramatic, with radio transmission in 1983 dropping to less than thirteen hours a week, and over 500,000 cassettes being mailed to students. Furthermore, more than a third of the students who listen to the radio programmes that remain do so on recordings. In 1982 91 per cent of Open University students had audio-cassette players. Just under half of the radio recordings are made off-air by students themselves but the majority are heard from cassette tapes ordered by students through an audio-cassette loan scheme which has been in operating since 1977.

Students wanting to hear a radio programme on cassette may obtain up to four programmes at a time by sending a request card to the University's headquarters. In 1981 42,000 programme recordings were requested, and the loan scheme increased the average listening rate by 6 per cent to 44 per cent, at an average cost to the University of 28 pence per programme request. It is clear that even when made originally for radio transmission, programmes available on cassette are more helpful for students than when broadcast. On a five-point scale, the mean helpfulness rating for broadcast radio in 1979 and 1980 was 3.42. When the same material was used on cassette, the helpfulness rating was 3.79.

However, there is a big difference, both in production style and educational effectiveness, between programmes made originally as radio programmes, and programmes created from the beginning for use specifically in a cassette format. Course designers can make full use of the stop-start and review facility, and the hidden nature of the next part of the tape to be played can also be exploited.

Thus students can be talked through diagrams, tables or formulae in a text, can stop the tape and carry out activities, and return to the tape for correct answers or comment. Cassettes combined with text allow the simultaneous use of sound and vision, with freedom for the students to move from one medium to another in their own time, and with the ability to rewind and repeat as necessary. Thus students have full control over their use of the medium.

Cassettes cam be used for a variety of educational purposes for which radio is less suitable or convenient: practice leading to mastery of a technique; commenting on diagrams, charts, tables or text; talking students through a home experiment; backing up or commenting

on the television programmers; recordings of conversation, interviews, language use and discussions, which can be replayed several times for the purpose of analysis'; and many other uses has designed an audio-cassette package which demonstrates various ways in which audio-cassettes can be used in a home-learning situation.

Academic staff at the Open University like audio-cassettes because they can easily integrate them with the texts as they design their courses. They can take a recorder home and rough out ideas as they develop the text, whereas with a radio programme, with its continuous and uninterrupted flow, it is impossible to develop such close integration between sound and print. The final cassette tape still benefits from being produced to ensure good sound quality and to avoid mistakes or ambiguity in the script, but academics generally feel that they have much more control over the cassette script than with radio.

The Open University students also like audio-cassettes. In a majority of courses where audio-cassettes have been used, students rank them as the most useful course component after the correspondence texts, and in a few course, they have been ranked even higher than the texts. The features that appeal to students are their convenience, the control they have over them and their informality. Students frequently comment that listening to an audio-cassette is like having a personal tutorial in their own room with the course author, a quality that appears to be lacking in most radio programmes no matter how skilfully they are made.

Lastly, cassette distribution is remarkably cheap in large quantities compared with radio transmission cost, which themselves are not expensive. AC60 cassette can be copied, packaged and sent to a student as part of the

course materials for less than fifty pence. Even including copying and clerical cost, it is generally cheaper for the Open University to mail cassettes to students than to pay radio transmission costs for two transmission of each programme, which there are less than 1,000 students on a course. Cassettes, though become increasingly more expensive than radio as student numbers increase beyond 1,000.

The initial choice of media for the Open University was made in 1967. Since then, audio-cassettes have been the University's most successful media innovation. Auto-cassettes are more widely used ad more effective than computer-assisted learning, video-cassettes, telephone teaching, or even television and radio . It is surprising then that few other institutions have exploited this cheap, convenient and effective teaching medium. The Open University's success has been due to course teams not using audio-cassettes as lectures, but instead tightly integrating them with the printed material.

Video-cassettes

The pattern regarding audio-cassettes and radio is repeating itself with video-cassettes ad television to some extent, although there are important differences. As with audio-recorders, a video-cassette player in a school gives more flexibility to the teachers in their use of broadcast meterials. However, there are far fewer video-cassette machines in Britain doubled from 1980 to 1981, This brought the number up to only 25 percent, and few schools has more than one, which meant that they could no play back and record at the same time. Nearly every secondary school had a video recorder in 1981, but the average number per school was only two, not really enough to give the case of access and flexibility required in video recording and playback equipment would do more than anything to increase the effectiveness of

schools television. It is significant that the increase in equipment over the last five years has been paralleled by an increase in the overall use of television, particularly in secondary schools, Nevertheless, there is still not enough equipment yet in schools to justify the transfer of schools television to night-time transmission although, technically, it is easier to record television than radio off-air because of the in-built clock on most video-cassette machines. The inner London Education Authority used to distribute its own programmes, and those of the broadcasting organisations, via a cable system to all the schools in its area. Because of the high cost of renting the lines from the post office it closed down its cable service in 1979, since when it has distribute its programmes on video-cassettes. By 1981 over 75 per cent of the primary schools in the ILEA area had bought video-cassette machines, largely due to a deal worked out between ILEA and a commercial rental company which gave the schools large discount prices. ILEA schools pay a nominal rental for the hire of each cassette loaned from their television service.

Nothing is more volatile at the time of writing than the expansion of home ownership of video-cassette machines. At the end of 1983, nearly 30% of all household in Britain had video-cassette machines in their homes, and sales are roughly doubling each year. Furthermore according to the BBC Audience Research Department figures video-cassette machines are just as likely to be found in lower income as in more wealthy households, the rate of growth of video-cassette access is greater in Britain than in any other country. By 1986 it is expected that half the homes in Britain will have a video-cassette machine. This rapid growth is due to several reasons. Machines can be rented for a little as 10 per month, and there are many high Street shops and back-street dealers from which video-cassette programmes

including feature films, can be hired at little cost. Because many of the broadcast programmes are still of high quality, it is also worth while recording these at home, especially since the range of choice at any one time is limited to four channels in the current absence of a widespread cable TV system. In 1981 11 per cent of Open University students had access to video-cassette recorders in their homes and another 8 percent had easy access to recorders elsewhere. By the end of 1982, 20 percent of Open University students had access to machines in their home and another 22 percent convenient access elsewhere.

The advent of video-cassette technology has caused often bitter arguments within the Open University, although now its advantages are generally recognised by the academic staff. The Open University experimented as early as 1974 with a video-cassette replay service to students in its South region. Eventually, the University set up a modest loan scheme on a national basis in 1982. The University's reluctance was due to the fact that any video distribution system becomes an additional cost to broadcasting since although the quality of times has deteriorated, the amount of transmission, and hence its cost, has remained the same. Video distribution costs like those for audio-cassettes-therefore have to be found from the University's academic budget, at the expense of alternative academic programmes, such as new courses or more research, and not from the part earmarked for the BBC. The loan scheme in 1982 was limited to thirty - seven course with low student numbers and courses without repeat transmission times. The scheme was designed to cope with a limit of 20,000 programme requests in the year. In 1983 the scheme was expended to cover eighty-four course, all with less than 850 students. Students obtain copies of programmes by sending in a request card to the University's headquarters.

A small stock of each programme recorded in advance has been made and any demands over that basic stock are net by making extra copies. The cassettes are mailed directly to the students homes. Students in 1982 and 1983 could either watch at home or on machines placed in local study centres or colleges. Cassettes are returned by students after use, and stored for re-use. In this way. 20,000 cassette copies can be added each year to the stock, thereby increasing the number of student requests that can be met within a relatively stable budget from year to year. The full cost of the scheme, including the rental of over 240 machines in regional study centres, was 150,000 in 1982. An evaluation of the first year's operation showed that, in general, the scheme had been successful. Programmes with a single transmission and a cassette loan facility had higher viewing rates than comparable courses with two transmission. The availability of programmes on video-cassette made it easier for students to integrate television with the rest of their studies and increased student's perception of the hopefulness of the programmes. There was also a high demand for cassettes from non-students, mainly from tutors for use in group sessions.

However, few students used the machines located in study centres. The equipment appealed mainly non-students since fifty-seven machines were stolen from study centres in the first year! Rental for study centre machines accounted for over half the cost of the scheme (80,000), so in response be no national provision of replay machines in study centres in 1984. Regions will be left to make their own arrangements from their own budges. It is expected though that demand for loan copies will increase as more students get their own machines. Indeed, many more students make their own recordings than borrow through the video-cassette loan scheme. Home recording increased viewing on post-foundation

courses by 8 percent in 1983. The Open University faces
difficult situation over the next five to ten years, until
most students have access to a video-recorder. It takes
two years to plan an Open University course, then it runs
for about eight years. Courses are now being planned
which will be running in 1993. Some course teams are
anxious to design video-programmes which will exploit
the educational advantages of cassette facilities, such as
the ability to stop, carry out an activity, rewind and
review, or pause on a still-frame. It is the lack of student
access to video-cassettes machine rather than the cost of
physical distribution which makes the University
cautious about producing programmes which can only be
used on a cassette machine. Calculating the cost of
physical distribution of video-cassettes is complicated,
and at the time of writing hypothetical, but it appears
that it will actually be cheaper to mail video-cassettes to
students than to pay for two transmissions when there
are less than 500 students on a course, provided cassettes
are returned and re-issued each year. This allows for
costs of cassette copying, clerical staff, post and packing,
and a 10 percent loss or replacement annually. Four
programme equivalents would be transferred to an E-120
cassette and mailed to students with their course
material. Students would return the cassettes at the end
of their course. Over an eight-year course life, the
distribution cost would be as little as 1 per student per
programme equivalent. Consequently, the University has
decided the following policy for all new course from
1985:

(1)   Programme on courses with less than 300 students
      will have no transmissions but will be distributed on
      video-cassette to student's homes.

(2)   Programmes on course with between 300 and 1,000
      students will have one television transmission and
      can also be borrowed on video-cassette through the
      loan scheme.

(3) Programmes on course with more than 1,000 students will have two transmissions but will not be available through the loan scheme.

(4) individual course teams may deviate from this policy if they can make a special case.

The aim of the policy is to encourage course teams to design programmes from the outset using either a broadcast or a video format but not confusing the two. It is also hoped that this will encourage a number of course teams to experiment with the design of video-cassettes, to build up experience about the best way to use the format. The policy at the same time limits the number of students who will have to use a video-cassette machine to about 6,000, possibly requiring about 3,000 students still without access to machines to get one.

In the long term, it is possible that only programmes on the foundation courses and two or three large second-level course will be broadcast at convenient times. Programmes on courses with more than 300 students are likely to be made in a video format, but broadcast one during the night for automatic off-air recording, with a loan scheme back-up. Up courses with less than 300 students, the cassettes will be mailed directly to students.

Why does the University believe that there is such a difference between broadcast and video formats? The first Open University course to be designed for use on video-cassettes was EM235, 'Developing Mathematical Thinking', presented for the first time in 1982. It was aimed at teachers and the programmes were planned to be viewed in groups at local teacher centres or schools already equipped with video-replay machines. In fact, about half the students watched in groups, with the rest watching at home on their own. The programmes were designed differently from programmes, although they were transmitted for off-air recording. Each twenty-five-

minute programme consisted of a series of segments, each lasting from two to seven minutes, observing children carrying out mathematical operations. After each segment is was planned that the tape should be stopped and followed by group discussion of the segment. Suggested questions for discussion were contained both in the programme itself and in the accompanying broadcast notes.

An evaluation of this course showed that students in groups used the programmes differently from students watching individually. Individual students used the reply facility more, while group students found that the discussion after each segment provided sufficient recall. Individual students were less confident about their interpretation of the material than group students and tended to concentrate on details rather than on more general points. Students in the group situation were sometimes anxious about using the equipment, not always being familiar with it, or were more self-conscious about stopping, starting or replaying the segments when other were present.

This course is perhaps unusual, being designed for group work, and great care must be taken in generalising to video programmes designed from individual use. It does, however, demonstrate that there are different design features of video programmes if the potential of the medium is to be exploited, and their structure and format will differ from broadcast programmes, just as audio-cassettes that exploit their medium differ from radio programmes This principle has by no means permeated to all producers. Many programmes made by ILEA since 1979 still look like broadcast programmes with a continuous, uninterrupted format, for does the Open University's own drug therapy course made for general practitioners, really exploit the cassette medium. Cassettes were used mainly because they would not be

seen by the general public and consisted of a series of interviews between doctors and patients but wit no explicit instruction to stop or interrupt the tape. While video cassette programmes require different production formats from broadcasts, the design features of audio-cassettes will not always be appropriate for video production. The production requirements of a video programme are much more demanding technically and in terms of manpower. This means that recording of material, and its editing, is separate from the preparation of the texts to which it relates, and makes it more difficult at the design stage to develop the very close integration between text and programme that is possible with audio-cassettes, although careful advance planning and editing of both programme and text can go some way towards this.

Nor can students so easily integrate video programme and text simultaneously, because they cannot watch video sequence is much more difficult than during an audio sequence will tend to lead to concentration on detail rather than on principles or general points. In practice, this means that video sequences will tend to run for longer without interruption, with interrogation of the material taking place between segments, with some replay to assist. Particularly where students are having to share equipment either a machine at a study centre, with other student waiting to use it, or at home, with the television set wanted by the rest of the family it will be more difficult for student to spend a great deal of time working repeatedly through the cassette.

This is less of a problem with audio-cassettes. It is clear that is the next few years there will be scope for a great deal of experiment and innovation to identify be suitable video-cassette format for education. The most important aspect for both audio-and video-cassettes is the control over the medium that they offer the learner

compared with broadcasts. It is worth looking more carefully at this comparison since it highlights some of the unique characteristics of television, as well as certain weaknesses of broadcasting as an instructional medium.

In comparing these two tables, it would be an advantage to have an audio-cassette so that you could look at the framework while we comment upon! It will be seen though, that it is difficult for a learner to integrate or relate broadcasts to other learning materials because of the need to catch the broadcast at a set time and the impossibility of stopping or interrupting a programme at a specific point. If ideas or thoughts are stimulated during a broadcast, learners run the risk of either losing the thread of the programme or being unable to follow through their own ideas. Some producers at the Open University have argued that one of the values of a broadcast is its ability to teach learners to think 'on the run', and that this is an essential everyday skill. We have found little evidence that broadcasts do this and some may well argue that education is more concerned with teaching students to think carefully rather than quickly.

With either a broadcast programme or a cassette each individual member of the target audience is sent the same material. No matter how specialised the target audience each individual will vary in ability to learn from the programme. Programme makers have to make assumption about the appropriate level nut there will always be a majority of the audience who will not find the pace quite right in terms of their own learning needs. With recorded material is provided that the level of the material is not too wide off the mark it is possible for learners over a range of abilities to repeat the material until they have mastery over it. Furthermore, with a recording, learners can stop to reflect on the material, analyse it or restructure it, as it best suits them.

Salomon has pointed out that television is particularly rich in the quantity and variety of information it conveys. It uses a wide variety of symbol system-sounds, pictures, colour, movement. Television is also highly ambiguous in the way it conveys meaning. This results from the techniques used in production-camera angles and movement, editing procedures, manipulation of structure and from the richness of the information television conveys. Because of its ambiguity, television material lends itself to a wide variety of interpretations from each individual viewer, many different interpretations being equally valid.

This means that each viewer will abstract different meanings from the same programme. Television should therefore be valuable for developing creative or open ended thinking because it forces learners to impose their own construction of meaning from the programme material. If such a hypothesis is correct, it makes it all the more important that learners have the opportunity to explore television material more fully than is possible with a single, unbroken transmission.

Broadcasts thus appear to be much weaker instructionally than cassettes in terms of integration with other material, ease of recall, mastery learning, deep thinking and possibly creative thinking. By their very nature, broadcasts tend towards stimulating more superficial levels of response compared with cassettes or books. We have left the most controversial, and potentially most challenging implications of cassettes until last. Cassettes could free educators from the dominance that broadcaster have exerted over the design and distribution of educational audio-visual materials. Until recently, distribution of educational audio-visual materials. Until recently, distributing video-visual material widely through formats other than broadcasting has been unrealistic because of the high costs of

distribution on a alternative formats, such as film open-reel video tape, and because of the lack of playback equipment in schools or homes. On the other hand, the distribution of broadcasts has been largely seen as a free service from the user's point of view. The increasing accessibility of video-cassettes are changing that relatively low costs of distributing video-cassettes, are changing that situation. With broadcasting, the broadcasting organisations set the priorities, select content, determine style and decide production and technical standards for what they broadcast. It practice, they only transmit material that they themselves have originated.

Video-cassettes can change all that. It is now realistic for other agencies universities, colleges. Local authorities, voluntary organisations, even school-s to commission, produce and distribute effective video material for the specialised audiences that broadcasters have been unable to serve adequately in the past. Costs will depend very much on what kind of programme is required and on whether full or margins costs are changed. There is, however a good deal of spare production capacity, particularly in the public education sector, so marginal costing is often realistic. Highly effective, professionally made half-hour educational vide-cassettes can be produced for between 8,000 and 20,000 depending on the nature of the material. Cheap programmes which nevertheless are very effective in certain contexts if carefully designed can cost as little as 2,000 to produce. This should be compared with a full production to of around 35,000 or an average of 7,000 for a programme budget for a BBC/Open University television programme. You get what you for, of course, BBC/Open University programmes often include overseas filming, expensive computer graphic or animation, glossy drama productions, or complex and originally designed physical

models. However, for many educational purposes, such expensive facilities are just not necessary. It depends on what the teacher wants to do.

The implications of lower productions costs and relatively low-cost non-broadcast distribution are fare-reaching. Because video distribution costs are related to the number of cassettes to be distributed, video programmes of very small minority audiences become a real economic possibility, provided that there is a framework through which they can be marketed. Secondly, educators can make programmes in the style, peace and format which they believe to be important. There are obvious dangers that the full potential of television will not be developed by people who are not professional broadcasters.

On the other hand, there are many able and trained production staff outside broadcasting organisations willing to work to a clear educational brief. Also, those who regularly deal with specialist groups are likely to be better judges of their needs than professional broadcasters There will still probably be a shortage of educators with the talen to exploit the advantage of television on cassette, but the technology does open up the market to those who want to try.

Over the next few years, we foresee rapid expansion of an educational video production and distribution industry in parallel to broadcasting. This in itself is unlikely to lead to the end of educational broadcasting. Broadcaster still have two strong advantages: their programmes are available to schools and the general public at no extra direct cost; and they have a wealth of resource. Experience and a powerful reputation behind them. Non broadcast video is likely to serve rater different needs from those of broadcasters. Nevertheless, there will be areas of overlap, and where the broadcaster

do not meet the needs of their target groups, they are likely to lose audiences to enterprising video producer. A number of agencies are now gearing themselves up for production and distribution of non-broadcast educational video. ILEA in particular has a large stock of cassette programmes available for hire by other local authorities, a does the recently established Educational Video Index.

It is unlikely that the commercial television companies will move into producing their own non-broadcast educational video material, but he BBC might, through BBC Enterprises. More likely is that educational broadcasting will be moved to night-time transmission for off-air recording, or be abolished completely, to free the air-waves for extended morning television in order to compete with cable and satellite competition. If the broadcasting organisations do start extensively producing non-broadcast material for education, it will raise some interesting legal and financial issues.

Will they reflect the true cost of making the programmes, or will they merely charge copying, marketing and distribution costs? The true cost is likely to be too high for schools. On the other hand, if the price of cassettes does not reflect the true cost, would broadcasting organisations be open to the charge of using license-holders' money or profits from advertising to undercut independent, non-broadcast production companies? Whatever happens, it will be interesting over the next few years to see whether there will be such an expansion of non-broadcast educational video as predicted, and if so, how the broadcasting organisations will respond to the challenge.

Video-discs and interactive video
There are different manufacturers' formats for video-discs and a variety of models within each format but, nevertheless, the principle of video-disc technology is

relatively simple to grasp. The more advanced systems using laser technology allow up to 54,000 single still-frames, with full colour, to be stored on one side of a disc. Each frame can be individually identified and accessed almost instantaneously. The rate at which these frames can be played can be varied across a wide range of speeds, from stepping through single frames, through slow motion, up to normal or even fast speeds. Two high-quality independent sound tracks capable of synchronization with the pictures when played at motion speed are also available.

These features allow a combination of moving and still pictures to be played linked to stereo or two independent sound-tracks. The systems allow for slow-motion, frame-by-frame presentation, fast motion, fast or slow forward or reverse search, or still-frame presentation, with no picture jitter at all on still-frame, each feature under the direct control of the viewer. More significantly, full computer control over the video-disc player is possible, either using an 'in-board' microcomputer linked to the video-disc player through an 'interface', i.e. a processor or computer programme that allows the microcomputer electronic assess to the video-disc player's controls.

With the right interface, it is possible to link up low cost domestic video-disc players with low-cost micro-computers, and to combine graphics or keyboard symbols from the computer with sound and pictures from the video-disc, on the same television set, with pictures from both sources either overlaid, or presented in sequence. Because the laser-based systems use light to read the disc, there is no mechanical contact. Therefore disc life and quality are not likely to be affected by constant use. Picture and sound quality, even on the cheaper players, is better than on video-cassette machines, although as yet

commercial video-disc machine cannot record, only play
back. The low-cost simpler domestic models retail at
around L400, with the more advanced commercial
machines costing L1,200. Video-discs certainly provide
more sophisticated and better quality video and audio
facilities than video-cassettes, but it would be a mistake
to think of video-disc technology is a distinct teaching
medium in its own right, with a unique potential for
education, and its own unique requirements for design
and production.

Because access, control of speed and search facilities
are more refined on video-disc machines, they allow
learners even greater control over video materials.
Furthermore, by linking video-discs to microcomputers,
learners can interact with the video-disc and the
computer. This means that the computer can provide
feedback to learners on what they have learned from the
disc and can guide learner through appropriate 'routes',
so that the learning experience is more individualised
and suited to each learner's needs.

Video-cassettes can also be linked to computers in
this way, but less efficiently than video-discs. Video-
cassettes do not have individual frames like video-discs,
so on all but the highest-cost machines, it is difficult to
get completely still pictures. While it is possible to lay
electronic pulses as markers along a video-cassette tap,
thus enabling each point on the tape to be identified an I
accessed, this cannot be done so accurately and cleanly as
with a video-disc It also takes time for video-cassettes to
wind backwards and forwards to the point to be
accessed, whereas video-disc access is virtually
instantaneous Nevertheless, a microcomputer linked to
a video-cassetie machine can do many of the things that
a video-disc can do, if less elegantly. At the time of
writing, every few educational video-disc have been
made, so the educational potential of interactive video is

till combines two well-established learning media, video and computer-assisted learning, in the hope that it will bring together the advantages and overcome the deficiencies of both. So far, three rather different ways of using video-discs in education seem to be emerging. The first is to use video-disc to provide a superior form of control and access. Thus a normal television programme can be made available on disc format, with perhaps a second sound-track added. The learner can then use the still-frame, slow motion and fast search facilities as required.

A refinement would be the provision of an index at the start of the disc so that the learner can go immediately to the section of most interest. Such discs can be useful for showing model procedures, such as the correct positions or movements for gymnasts or golfers and the correct procedure for stripping down a car engine. Or for showing animals operating in their natural habitat. The BBC has produced a video-disc of this kind on British garden birds, with of programme but it is possible for those who purchase such a disc to add their own computer control relatively easily. In this way, tests, feedback and suitable routing through the dice dependent on test responses, can all be added through the disc dependent on test response, can all be added through a linked computer. Alternatively, video-disc and computer control can be designed together as the video-disc is being planned. The resulting package can be extremely complex. Both to design and to work through as a student.

Student responses via the computer need not be limited to selecting from an array of multiple-choice answers, but can involve feeding in data, or more complex problem solving. Very sophisticated programmes are possible in this form. Fur instance, a video-disc made at the University of Nebraska provided

training on instrument reading or flying light aircraft. After a short period of instruction, the learner is given a set of instrument readings, then has to make decisions about operation of the plane's controls in order to bring the plane in to land. Dependent on the action chose, the disc shows the position of the plane in to land. Dependent on the action chose, the disc shows the position of the plane relative to the earth. This is done by the computer processing the student's answer and selecting the appropriate part of the disc for such an action.

Learners can in this way be provided with very realistic simulation exercises with the consequences of their decisions becoming painfully clear! The computer programme that accompanies such a disc can either be physically separate, on cassette or on a computer disc, or it could be computer when played. Computer programmes stored on video-discs, though, can be used only on the type of computer for which the programme was designed. The first commercial interactive educational video-disc, on teaching physics, was made at the University of Nebraska and marketed in 1982 by John Wiley. There is a third way of using video-discs which is just beginning to be explored in an educational context. Video-discs can provide an efficient and substantial data-base, with information stored in a variety of ways: as computer data, still-colour pictures, moving pictures, or text. Video-discs could therefore be used as a resource base, which the learner searches or used for a particular purpose.

For instance, in training historians, or archaeologists, a whole set of materials could be archived on disc-pictures of archaeological sites and artifacts, historical documents. Short dramatised extracts from historical events, archive film and so on. Students could be asked to work through this material, drawing conclusions and

testing hypotheses, with students to some extent imposing their own structure on the organization of the data. A teacher could use the video-disc material to show a sequence of pictures as desired to students. The first such 'archival' video-disc commercially marketed featured the satellite photographs of Jupiter and Saturn. These are merely glimpses of the potential for education of video-discs. But what are their implications for educational broadcasting?

Although the cost of making the master for discs from the final edited tape is not expensive given the cost of production, video-cassette production, are likely to be found mainly in production centres concerned with broadcasting. Secondly, to exploit the advantages of video-disc, programme productions costs are likely to be towards the more expensive end of the scale. Broadcasting organisations thus are well placed to exploit video-disc technology, at least technically. The design requirements of interactive video-discs and their implication for broadcasting organisations, though, are critical. Where programmes are to be designed from the outside to be used in an integrated way with computer control, difficulties are likely to required form learners, the extent to which learners will be free to choose their own paths through the material, what paths are into the disc, the balance between computer and video graphics, and the design of the computer programme, all have major educational television producer.

It would be a fundamental mistake to the normal television production is merely a mild extension of the normal television production process, with the computer programming contracted out as an after though almost. This kind of disc requires a team approach, involving teacher, television producer, computer programmer and instructional designer/evaluator, working as equals from conception to final credits. This inevitably slows up the

production process, limits the producer's freedom and increases the cost of production. It will be interesting to see whether broadcasters will be willing to enter into this more complex form of video-disc design and, if so, under what conditions; or whether they will prefer to stick to the safer form of video-disc design, where the disc can stand alone without being tied to pre-determined computer control. How realistic is it to expect video-discs or interactive video to become widespread in education ? Video-discs have only just come on the market and their commercial viability as a consumer product has yet to be proved. There are at the time of writing few commercial discs available for sale in Britain and it is not yet possible to record off-air on to disc.

Video-discs becomes widespread. However, a microcomputer can easily be linked of a video-cassette, in this way replicating many of the functions of video-disc for teaching students at summer school. Particularly for industrial training purposes, where very high-cost technology is being used, such as in nuclear power stations, air-traffic control, or oil-fields, the relatively high cost of interactive video-disc production is irrelevent when set against the phenomenally high cost or disastrous consequences of mistakes made in real circumstances.

The use of video-discs in schools i less certain. The cost of a video-disc machine is not out of the question, but given the slow growth of video-cassette machines with far greater amounts of suitable programme material, we do not see schools rushing to get disc have to cover their full production costs. It is difficult to imagine a well-designed interactive video-disc costing less than L25,000 to produce. To retail at L10 a disc, at least 3,000 discs would need to be sold to recoup costs, and this is high target for the school market given that there are less than 6,000 secondary schools in Britain. It is likely

therefore that video-discs will have a more specialised and restricted use than video-cassettes, at least over the next ten years, but where they are used and well designed they could prove to be extremely valuable. While the combination of video and computer-assisted learning may bring together the advantages of both, it is as well to remember what Bernard Shaw once said to a lady suggesting an experiment in genetic engineering: But what if it has our looks and your brains? After all, there is only one medium more expensive in education than television-and that is computer-assisted learning. Without careful design and choice of appropriate situations for its use, an interactive videodisc could easily turn out to be horribly ugly and expensive baby.

Cable and satellite
Cable and satellite developments are also likely to have some impact on educational broadcasting, although less immediately than video-cassettes or even video-discs. Should anyone be reading this book in 1988, or beyond, they will no doubt obtain some perverse satisfaction in seeing how wrong our predications have turned out to be, but for reasons which we shall explain, we suspect that there will be no significant expansion of cable for educational purposes much before 1990, although no doubt there will be a number of significant experiments. Similarly, the first UK direct broadcast satellite will not be launched until 1986, and while there will be four DBS television channels available from around that time, none will offer educational services.

There are four basic characteristics of cable television that are significant for education: the ability to provide a large number of channels-from thirty to a hundred, dependent on the technology-thereby theoretically increasing choice of service; the possibility of local programming; and the ability to filter or select viewers

electronically. Satellite television can provide national coverage but, due to international regulations, Britain is limited to only five channels.

A study of the implications of cable developments for the Open University suggested the following potential advantages of cable for education: better transmission times, more time available for educational television; channels dedicated solely to educational use; access to more potential students; more specifically targeted programming; increased interaction and student participation; improved facilities for local programming by local institutions; more choice of educational programming; easier access to television for teachers; more scope for experiment; multiple sound-track or radio channels.

These are all possible, but whether they are likely depends very much on political and financial decisions yet to be finalised. At the time of writing though, it seems most unlikely that these benefits will be realised in Britain, and, in fact, cable developments are more likely to have negative educational effects. For instance, even the most optimistic forecasts predict that less than 50 percent of the United Kingdom population will be on the cable by the end of the century.

Given the current unbridled of commercial basis on which cable is to expand, the first and most profitable areas to be cabled up will be the outer suburban areas and commercial centres of large cities. Rural communities and the poorer inner city areas are less likely to be cable up quickly, yet this is where the educational need and lack of provision is the greatest. Currently it seems that there will be no statutory obligation for British cable operators to carry educational or community programmes, unlike practically every other major developed country with cable systems

Nor are there plans yet to ensure the establishment of a nationally linked cable network. Current proposals are based on the establishment of independent local systems. This does not guarantee local programming, though. At least one commentator, John Kowkings, of the International Institute of Communications, predicts that London-based communications companies will make up packages of programming which will then be sold to local stations. The lack of a national network is a severe limitation for the Open University, but if there is spare capacity for local programming this would provide opportunities for other educational institutions to negative deals with stations in their own area. The key question, though, is who will pay for the educational services on cable, and how? some stations, just to earn brown it points, may allow local college to use spare studio capacity and an otherwise unused channel to provide low-cost programming free of charge.

More likely, companies such as Rediffusion Ltd will put together an educational packages of programmes, using whatever existing an educational package or programmes, using whatever existing material it can obtain at nil or low cost from current educational providers, such as those university, colleges and local education authorities that have their own production facilities, Some course may be mounted on a pay-per-view basis, or made available only to student who enrol. Enrolled students could the given an electronic code or key which would enable them to access the relevant programmes. It is difficult, though, to see coherent educational offerings of any quality being offered in these ways. Educational broadcasts and Open University programmes are strongly protected by copyright, and it is unlikely that such material will be released free of charge fro use by cable operators. The real issue is who is going to pay for the costs of creating original educational

material for use on cable. It is unlikely that students will be able to pay the sort of charges that would be necessary to recoup 'true' production costs. At the time of writing there is no lobby for education among the political debates on cable, ad the educational and voluntary agencies seem to be too diverse and unco-ordinated to sort out any agreed policy. One of the major attractions of cable for education frequently claimed by politicians is its potential for two-way communication, allowing the viewer to interact, respond or participate in the viewing event. This is the sort of claim that needs to be taken with a good pinch of salt. There are major financial and technical obstacles that limit the likelihood of cable being a truly two-way communication system for some time. There are two types of cable that can be laid.

Co-axial cable is the basis of virtually all current systems but, for practical purpose, co-axial systems tend to be limited to a maximum of thirty to forty channels in one direction. Co-axial cable is not really suitable as a two-way communication system. Fibre-optic cable has much greater capacity and is a realistic proposition for two-way communication. However, it is still a largely untried technology in a fully operational sense and it will probably be more expensive than co-axial cable to lay.

Secondly, two-way communication will depend crucially on the configuration or design of the cable system. Co-axial cable uses a 'truck and branch' system, i.e. a central 'truck' cable running down a street with 'branches' off to each house. The street cable itself is probably a branch of a more central trunk running through the town. Even with Fibre-optic cable laid in a truck and branch configuration, 'backward' communication from the home could only follow the same route as the downward signal i.e. back to the 'head-end', the local station.

It would not be possible to communicate across branches, i.e. with neighbors in the street, or the local college on the other side of town, unless this communication was relayed from the head-end. If all communication have to go through the head-end, this obviously limits the amount of communications that can be handled, even with a hundred channels. The alternative, only possible with fibre-optic cable, is a configuration similar to that of the public service telephone system.

This has been named a 'star' system since each house would be linked directly to a central switchboard, which in turn would also be linked up with other switchboards. This would allow any one point to communicate directly with any of the others, as with the current telephone system but using much wider bandwidths, including even television transmission' outwards' as well as inwards. Fibre-optic cable would be essential for such a system. Also, a national grid or satellite-linked system would also be necessary for cross-connections between different cable systems. Unfortunately, because of the amount of switching gear required, a star system would be much more expensive to introduce. For these reasons, interaction is most likely to be limited to user typing. i.e. keying-in instructions along the lines of PRESTEL responses, enabling home banking and possibly some computer assisted learning responses, through a local view data system. In other words, it would give little more than is currently available through PRESTEL. Until a national Fibre-optic star system is established, it will still probably be more practical to use the public telephone network for voice interaction or even telewriting.

These technical considerations indicate quite clearly the king of framework required for education from any national policy for cable development: statutory

obligation on cable operators to carry at least one educational and community channel; a policy which will encourage cable operators to provide services in areas of greatest commercially attractive areas; cable systems based on fibre-optics technology 'star cable configurations; and a national grid or a satellite-linked system, for cable allowing inter-communication between all cable users. Unfortunately, at the time of writing , most of these developments are unlikely for some time given the 'free market' policy of the present Conservative government. The use of cable for educational purposed, therefore, is likely to develop very slowly and to be very piecemeal, as indeed will cable be generally.

The original reason for setting up cable systems in North America was to provide decent signals for the many areas not covered by adequate off-air transmission, but in Britain most homes can receive high quality, off-air broadcast transmission. Secondly, there is no guarantee that an increase in channel will lead to an increase in the range or quality of programmes available. Anyone who has switched from channel to channel on cable systems in America cannot fail to have noticed the similarity of programming on each channel. It is significant that the BBC plans to use one of the new satellite channels merely for repeating old BBC programmes. Leaps in technology are not necessarily accompanied by leaps in imagination.

The growth of video-cassette machine ownership, the ease of hiring video-cassettes for a small fee from the local corner shop and the opportunity to record high-quality broadcast programmes, are all real threats to the competitiveness of cable television. Most of all, laying the cables, connecting up homes, providing extra programming and linking cable systems together, will be extremely expensive and financially risky. There is likely to be a great deal of caution exercise, therefore, before there is a major expansion of cable services. For all these

reasons, we are very sceptical of cable being of any significant value for education in the 1980s and early 1990s despite its potential. The main danger of cable developments is that, despite their slow growth, they will put yet more pressure on channel controllers in the broadcasting organisations to remove educational programmes from trasmmission. Only the national broadcasting organisations are in a position during the 1980s and 90s to provide a national educational television service. Cable would be a very poor alternative.

Teletext and viewdata

Teletext systems such a CEEFAX and ORACLE which broadcast 'frames' or 'pages' of information that can be called up at any time by the viewer, have at the moment only two real educational advantages: they are useful for up-dating information, such as news headlines and weather forecasts; and the service is free. Their educational limitations though are considerable. The number of pages that can be accessed is limited, in 1983 to around either hundred, and since each teletext page holds far less information than a printed page, the total amount of information that can be accessed is very small indeed.

Because of the inherent nature of the technology, teletext information that can be easily condensed and updated. There is no possibility of two-way communication, and a viewer can have irritating time delays while waiting for pages called up. Teletext services have been used, however, for transmitting computer programmes to schools, which are received on a standard aerial and dumped into a BBC microcomputer, again offering a free, if limited, distribution service. Viewdata systems based on the telephone, such as PRESTEL in Britain. ANTIOPE in France and TELIDON in Canada, have a much wider range of features which may prove more useful in

education, but not to the extent of having much impact on broadcasting. Viewdata systems also have major educational limitation. In theory, the number of pages that can be accessed is limited only by the size of the computers that store the pages.

However, like teletext systems, the technology limits the amount of information that can be displayed per page. Also, because of the cost of crating and accessing viewdata pages, information again tends to be presented in a condensed and simplified form. Viewdata systems structure information is till unsatisfactory: searching through the branching structure for the information one needs is a tedious business-especially if it was never there in the first place.

This technology structures knowledge in a way that is unhelpful for learning. Attempts to base systems on keywords may improve access and structuring, but it is hard to see how the system can ever have the flexibility and richness of an educational television programme. There have been some experiments, particularly in Canada, to crate teaching materials for use on viewdata systems. TV Ontario located Telidon terminals in 120 primary schools throughout the province, and asked teachers to crate their own programmes by sending in specifications to TV Ontario where skilled Telidon advisers crated the frames and stored them on the mainframe computer.

Teachers could then call up on the telephone not only their own programmes but also all the other programmes so crated. However, despite the superior picture quality compared with Prestel, the quality of the programmes that we saw was poor, being limited to testing recognition skills. There was of course no sound, and very primitive animation. Pupils appeared restless and easily distracted without the sound facility. It may be

too early yet to judge but it seems there are inherent problems with using systems such as teletext or viewdata extensively in education for teaching purposes, although they may have their use as a data-base or for general informational purposes.

Microcomputers and microcomputer developments

It is the microcomputer which is likely to have the greatest long-term impact on educational broadcasting, as on many other aspects of out lives. Microcomputers will enable individual teachers to crate their own audio-visual teaching materials quickly, easily and economically, and will enable the individual learner to interact in a wide variety of ways with such audio-visual materials, which can be tailor-made to the individual's needs. This material is likely to be highly motivating both for the teacher and the learner.

To do this, teachers will not need to be highly skilled in using computers, and the learner need not have any programming expertise to study in this way. Furthermore, this is not a Utopian dream: such a situation could be widespread in British education by the early 1990s. The ability to crate one's own audio-visual materials on microcomputers will not eliminate altogether the need for educational broadcasting but it will require educational broadcasting to be used more precisely. What evidence do we have for such a bold claim? First, it is important to distinguish between two educational roles for microcomputers. The first is to use them to develop knowledge and skills in computers and computing, since these will be essential requirements for children and many adults in the coming years. But the microcomputer has also the potential to be a very powerful teaching aid in its own right. Currently, this potential has not been realised, because of technical limitations. Designing computer-assisted learning

programmes is at the moment extremely time-consuming, requires a good deal of computer and teaching skills. Effective CAL programmes tend to be expensive to produce in terms of the actual use made of them. The learner is generally limited to responses via the keyboard, and the range of responses in this mode is also limiting. Another very real limitation of CAL is the lack of adequate sound, particularly the teacher's voice. This means that CAL programmes have a heavy reliance on textual and simple graphical presentation, although animation is also available at a price.

Crating good quality, effective graphics and animation requires a lot of programming time and can be difficult to achieve on the lower-priced microcomputers. The major limitation, however, at present is the need for teachers to become skilled programmers. Many have neither the time nor the inclination to do this, and in terms of what CAL can currently offer on microcomputers, they are probably correct in assuming that the results are not worth the effort. Those who have proved skillful in this area have tended to produce packages which are used by other teachers-resulting in a degree of centralisation of teaching which in practice limits the use of such materials.

But all that is changing. By the late 1980s peripherals to standard microcomputers, and special packages of programming which can be loaded into a microcomputer so that it can be operated easily in a certain way, will allow teachers to create their own sophisticated audio-visual materials very simply and without needing computer programming skills. Similar developments will also allow audio-visual material to be sent down a telephone line and for learners at home to communicate back with a teacher and other learners, both with voice and visually.

It is possible to predict fairly accurately what a low-cost microcomputer-based audio-visual teaching system will look like partly as a result of experience gained from using a prototype system called CYCLOPS at the open University and in schools. CYCLOPS digitally converts simple animation -into sound codes. These graphics can be very easily generated using a combination of a standard computer keyboard and an electronic writing-pad which also displays graphics on the TV screen.

Still images from a video-camera can be similarly coded. Because the video singles are converted into a sound code, they can be stored on audio-cassette or transmitted down standard telephone lines, then decoded back into a video signal. Using either standard stereo audio-cassettes or two telephone lines, full sound can be synchronized with the visuals. The crucial point is that audio-visual materials can be created very simply and quickly this way without any need for computer programming skills.

The system has been successfully used in the Open University for three years for running distance audio-visual telephone tutorials. Students and tutors may be scattered across as many as seven different locations at any one time. Each person though is able to communicate with everyone else taking part, both visually and orally, using a standard teleconference bridge. The same equipment has been used in schools. Three teachers with no previous experience of using computers crated their own CYCLOPS materials for use by individual children in their classes using the audio-cassette facility. It proved possible in this way to develop very quickly highly motivating and interactive audio-visual materials. CYCLOPS is basically a peripheral system for a standard microcomputer since its core can be made available as cartridge or a ROM to be added to a standard microcomputer.

While it may not be the CYCLOPS system that eventually gets used, by the late 1980s microcomputer-based audio-visual teaching systems will be common in schools. A probable configuration will consist of a standard television receiver, a stereo-cassette player and microphone, a light-pen or an electronic writing-pad, and a standard microcomputer. This will incorparate a CYCLOPS type facility, either built into the microcomputer itself, or as an add-on accessory, and a connection to the public telephone system.

Most of this equipment is already available in schools in British secondary schools were equipped with a microcomputer. The additional components- the light-pen and the   CYCLOPS-type carriage-will cost approximately L50 each, and in the future, facilities similar to CYCLOPS are likely to be built into a microcomputer as a standard feature. Microcomputers will also increase in power and reduce in price over the next few years.

With such a facility, teachers can crate their own teaching materials. They can draw on the screen and add text via the keyboard. They can also use standard graphics facilities in the cartridge or the microcomputer itself, to create shapes such as triangles, squares and circles, and to fill-in these shapes with different colours. They can also crate certain forms of animation. The facility ennobles a teacher to build up pictures of frames which are then transferic to a standard audio-cassette. Each picture have been assembled, edited and correctly ordered, the teacher can add the sound-track using the microphone and the audio-cassette player.

As well as the teacher's or the pupils voice, music or special effects can be added. The computer controls the length of time each frame is displayed to enable sound-track and picture to be synchronized. The programme

can be tested on one or two learners, then amended as necessary. Using the connection with the telephone system, programmes can be exchanged with other schools, ordered from a central bank or used for distance teaching.

Teachers can learn how to use the system either by following a simple manual or by loading on a cassette containing a training programme. It is likely to take teachers two or three hours to learn how to use the system, after which time they will have no difficulty in crating their own materials. Learner will load the audio-cassette and work thought the programme very much in the same way they would work thorough an audio-cassette or video-cassette. In addition, though, they can use the light-pen or keyboard or microphone to give answers to questions on the tape, and their responses can be recorded together with the original programme, for later inspection by the teacher if so desired. CAL features can also be added, with feedback given on keyboard responses, and the tape can be directed to appropriate sections according to the learner's responses.

The technology to do this is already here and will be introduced to schools and colleges in the mid 1980s. We will have to wait and see whether teachers will what to crate their own materials in this way or whether they will prefer to use materials prepared more professionally by others, probably marketed by publishers. Such developments, however, have obvious implications for broadcasters since microcomputer programmes of this kind will have a number of advantages over video materials. They will be much cheaper and easier to produce and distribute than video-cassettes. They will be much more interactive and specific to the needs to individual teachers and learners, especially if created by teachers themselves. But there will also be disadvantages. It is likely that a majority of teachers will prefer high-

quality, off-the-shelf material that is readily and easily available. The 'cottage-industry', teacher generated computer materials will still lack many of the features of video, no matter how professional the computer design. There will still be need for film or tape of overseas situations, for portraying human interactions, for presenting the world in a fully representational manner, for the more personal aspects of seeing a human grammes will not eliminate the need for video. They will, however, provide teachers with a convenient and cheaper alternative.

Video programmes will therefore have to compete against other highly effective media for the limited time of teachers and learner. If video is to compete successfully, broadcasters and video producers will need to identify and exploit to the full the unique advantages of their medium. The main developments likely to impact directly on educational broadcasting are cassettes and microcomputers. Both will develop independently of and in parallel with broadcasting, and are likely to reduce to some extent the use of education broadcasts, particularly in schools. Cable and satellite may have a further negative effect, increasing pressure on broadcasting organisations either to transfer educational programmes to inconvenient or impossible times or, for financial reasons, to drop educational programmes altogether. Cable is unlikely though to offer an effective alternative for education.

2

Educational Radio and Television

As far as the broadcasting systems are concerned, the boundary of educational radio and television is most clearly visible in organizational structures. Broadcasting organizations, both public and private, establish departments for educational radio and television. Occasionally ministries of education establish divisions responsible for broadcasting, and so do universities and other educational institutions.

Agencies seeking to educate people who have left the formal educational system obtained production facilities and staff to make programmes and transmit them, in the field of health, agriculture, community development, and so on. Often they create a clearly labelled new section for such work. To an observer of a given country, therefore, most of the provision for educational radio and television stands out quite vividly. Its boundary is least clear where programmes are being offered to listeners and viewers who are outside formal education.

For example. Sesame street, the American series of programmes for children not yet at school, is avowedly educational. Bellamy Up a Gum Tree, a naturalist's series on British television, is used by older children and adults to educate themselves, but in most countries where it is broadcast it is without links to the formal education system. There are many similar examples that could be drawn from around the world.

Thus it would be wrong to restrict discussion in this book to educational broadcasting that had been labelled as such, or to broadcasting that serves the formal education system. The case studies in Part Two go beyond these boundaries, offering several examples of television for non-formal education and of radio.

In general, however, educational broadcasting exhibits four dominant characteristics:

(1) its programmes are arranged in series to assist cumulative learning;

(2) they are explicitly planned in consultation with external educational advisers;

(3) they are commonly accompanied by other kinds of learning materials, such as textbooks and study guides; and

(4) there is some attempt made to evaluate use of the broadcasts by teachers and students.

The term 'broadcasting' covers the transmission of programmes by several types of distribution systems. The commonest of these, particularly in developing countries, consists of transmitters broadcasting from towers to conventional aerials and receivers for radio and television. In some countries, however, educational broadcasters have access to other systems, ranging from satellite and micro-wave systems to closed-circuit cable systems.

Growth of educational radio and television systems

This is not the place for a lengthy historical review, although such reviews have been written for radio and television in general in several countries and, to a more limited extent, for educational broadcasting in particular Suffice to say that educational radio rose to prominence in the years before the Second World War, particularly in

North America and Western Europe, and that educational television blossomed in the years after that war, as more and more countries adopted television. Within the United States, for instance, many educational institutions set up their own radio stations, as Frost describes for the years up to 1937. In the same country, over sixty educational television stations were in operation by 1961, according to Powell, built largely out of capital provided by charitable foundations. Schramm, Lyle and de Sola suggest that non-commercial educational television had it's birth in the United States as late as 1954, but that about seven stations a year were added over the next nine year's.

Across the Atlantic, Western European countries followed a similar sequence of technical development, except that instead of educational stations springing up as in the United States, educational programmes took their place in the context of general broadcasting, using the same studios and transmitters. The success of educational radio and television in North America and Western Europe caught the attention of international agencies such as UNESCO, and of national agencies providing technical assistance to developing countries. Both radio and television appeared to hold substantial promise for countries without sufficient trained teachers and classrooms.

The new educational media, as radio and television were often called in the sixties, were introduced in many countries, often with the assistance of a foreign agency. Thus the books written by Schramm and his colleagues, starting with The New Media Memo to Educational Planners, were commissioned in the late sixties when confidence in educational radio and television was high and people in developing countries very much wanted to know about experience elsewhere as they planned their

own systems for the first time. The Schramm series
offered general descriptions of some twenty projects in as
many countries, as well as the analyses of the first
volume. In contrast, this volume is written at a time
when doubts have arisen about the best way in which to
use educational broadcasting particularly in developing
countries. Western models have not been universally
successful when transplanted, and the need for exchange
of information between developing countries has
increased; in particular, the need for information about
organization and management has increased.

Table 1: Catalogue of Countries and Territories Known to be using
Educational Radio Programmes in the 1970s

Africa :   Algeria, Angola, Benin, Botswana, Burudi, Central
           African Republic, the Comoros, the Congo, Djibouti,
           Egypt Ethiopia, Gambia, Ghana. Lvory Coast,
           Keneya, Lesotho, Libri, Madagascar, Malawi, Mali,
           Mauritania, Mauritius, Morocco, Niger, Nigeria,
           Reunion, Rwanda, Senegal, Seychjelles. SierraLeone,
           Somalia, South Africa, Sudan, Swaziland, Togo,
           Tunisia, Uganda, United Republic of Cameroon.,
           United Republic of Tanzania, Upper Volta, Western
           Sahara, Zambia, Zaire, Zimbabwe.
America :Antigua, Baharmas, Barbados, Belize, Bermuda,
           Canada, Cayman.
North :   Island, Costa Rica, Cuba, Dominica, Dominican
           Republic,EI   salvador,   Greenlad,   Grenada,
           Guadeloupe Guatemala, Jamaica, Martonoqie.
           Mexico, Nicarqagua, Panama, St Kitts, St Lucia, St
           Pierre et Miquelon,
America : Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador,
           Falkaland Islands,
South :   French Guyana Guyana paraguay, Peru, Venezuela.
Asia: Afghanistan, Bahrain, Brunei, Burma, China,
           Cyuprus, Hong Kong, Inida, Indonesia, Islamic
           Republic of Iran, Israel, Japan Jordan, Republic of
           Korea, Kuwait, Lebanon, Malaysia, Maldives, Nepal,

Palostan, Philippines, Qatar, Singapore, Sri Lanka, Syrian Arab Republic Taiwan, Thailand, Turkey, Socialist Republic of Viet Nam, Yemen.

Europe : Austria, Belgium, Czechoslovakia, Denmark, Finland, France, German Democratic Republic, Federal Republic of Germany, Gibraltar Greece, Hungary, Iceland, Italy, Malta, Betherlands, Borway, Poland, Romania, Soviet, Union, Spain, Sweden, Switzerland, Unityed Kingdom, Yugoslavia.

Oceania : Australia, Cook Islands, Fiji, Gilbert Island, New Caledonia, New Hebrides (United Kingdom) New Zealand, Niue, Norfolk Island, Pacific Islands, Papua New Guinea Tonga, Western Samoa.

In 1980 after more than fifty years of educational radio and about thirty years of educational television, where does educational broadcasting stand in the countries of the world? Tables 1 summarize the position. Almost every country claims to use either educational radio or educational television or both. In some countries, total provision may amount to no more than an hour or two a week. In others. It may add up to than a hundred hours in the same period, beamed at a variety of audiences. In a few countries, educational radio and television are still at the experimental stage, serving very small selected groups of listeners or viewers, sometimes numbering less than 1,000. But in most countries, are counted in tens or hundreds of thousands, and, in a few in millions. Without doubt, educational radio and television today must be regarded as mass media, instruments of mass education.

Educational radio and television systems in context

Since these systems are largely, if not entirely, the product of local regional and national circumstances, particularly the last, it is hardly surprising that they differ to the extent of no two being identical. It is worth while analyzing the factors that influence planning an implementation. Such factors can be considered under six

subheadings: geographical, political, cultural, educational,
economic and technical. Figure 3 is a rough map
showings the main components that make up each factor.
Together they constitute the context of educational radio
and television. This grouping is somewhat arbitrary, but
provides fairly complete coverage of the factors.

Geographical factors

Terrain and sheer distance are limiting factors for
educational broadcasting, as they are for a broadcasting
in general. Educational radio for Nepal was planned with
that country's mountainous nature very much in mind.
Indonesia's Palapa satellite has the potential to beam
educational broadcasts to many of the country's 3,000
islands, including ones well beyond the reach of existing
ground networks. In the Pacific the satellite code-named
ATS-1 has provided for some years an educational link
between institutions scattered across that wide ocean. In
Canada, more than 80 per cent of the population live
close to the southern border, yet remote communities in
the tundra are also being served by educational radio and
television through a carefully planned combination of
distribution systems, including at present the satellite
Anik-B.

These are extreme examples, perhaps, and none of
them is beyond the experimental state. Yet, even in
countries with dense populations and relatively
sophisticated communications systems, train and distance
must still be taken in to account. In some countries, small
but densely populated areas may be in the 'shadow' of a
mountain range that deprives students there of
educational broadcasts, especially television, as is the
case even in parts of the United Kingdom where Open
University broadcasts by the British Broadcasting
Corporation cannot be received clearly. In a few parts of
the United States, in spite of massive investment there in

broadcasting systems, some students find themselves too far away from the station that transmits educational programmes. In that country, the public broadcasting network, which carries most of the educational broadcasting network, which carries most of the educational broadcasting, has only recently been linked across the nation by satellite.

It is a fact that many countries build transmitters so that, say, 90 per cent of the population, including all of the urban population, is well served, but the cost of transmitting to far-flung rural areas is too high, and rural populations are frequently placed at a disadvantage. The Maranhao case study in Brazil provides an example of this: in spite of good intentions on the part of planners, only the capital of Maranhao State, Sao Luis, is to date reached by the television transmitter. In Kenya, educational radio transmitters do not reach the rural districts of the north-east, which are sparsely populated. The United Republic of Tanzania, too, has very uneven broadcast coverage. The political incentive to overcome geographical constraints of distance is too small; therefore students in isolated rural districts have to do without educational broadcasts.

Political factors

National ideologies have a powerful influence on broadcasting, particularly educational broadcasting. Broadcasting is easily used as an instrument for raising civic and political awareness or for socialization. Decisions to install radio or television networks rest invariably upon political foundations: even a decision not to install these networks may stem from ideology, as in the case of the United Republic of Tanzania's attitude towards television in the seventies.

A government committed to increasing educational opportunities cannot ignore the potential of educational

broadcasting. Likewise, a government wishing to enforce a new national curriculum, possibly against the inclinations of a minority of teachers and students, may use the unifying effect of television of radio. A government fostering decentralization through local or regional development may turn to regional educational broadcasting to help achieve this aim, as in Yugoslavia, or to served ethnic minorities within the country, in Canada. A government seeking to bring about political stability or change by educating the younger generation and re-educating the older will ensure that educational broadcasting contributes to these processes, in harmony with other means.

Government control of broadcasting, particularly educational broadcasting, is strict in many countries, through a variety of agencies. As the case studies show, control may be vested in ministries of education, culture, telecommunications, finance, health, agriculture, industry, internal affair or, occasionally, in an autonomous body on which there is government representation. One or several ministries may be involved in control. Central government in every country retains some measure of control, although in many states local or regional governments exercise control too. Control takes many forms: regulations of all kinds, often administered by a control commission, censorship powers membership of boards and advisory committees, financial control through annual funding from a government source, and so on. Educational broadcasting, which usually falls in the public sector rather than the private or commercial, is very vulnerable to struggles for control between ministries: the Ministry of Agriculture may be unwilling to co-operate with the Ministry of Health in producing and transmitting community development programmes, or the Ministry of Telecommunications may neglect to consult other ministries with a legitimate interest in

proposed change such as the introduction of satellites. Control of production and transmission facilities is often exercised in an exclusive fashion that deprives possible users of access.

Cultural factors

Ideology also affects government attitudes towards two sets of important cultural factors: the influence of elites and of foreign culture.

In most countries, the influence of elites is so strong that the 'communication effects gap' is probably widening. This gap is between elites and the reminder of the population. Elites employ communications, including educational broadcasting, to their own advantage more than to the advantage of others, with the result that they enhance their own position, claims Rogers. Thus educational broadcasting may be widening the cultural gap, as elites tend to benefit more than others do.

It is difficult to define elites in a universally acceptable way: their basis may be political, racial, economic or even religious. It is easy to think of modern examples. Education is undoubtedly a way for people to gain entry into elite groups, yet, to the extent that the non-elite class loses its educated members to the elites, that class is weakened in its struggle for social justice.

Such processes of social change, aided and abetted by educational broadcasting, are viewed with varying degrees of favour or disfavour by governments of different ideologies. What is remarkable, as Table 1 shows, is that almost every country of the world, of whatever ideology, has favoured using educational broadcasting to foster social change. Governments seem to ignore the possibility that the communications effect gap may be widening, and consider hat educational broadcasting is in the general interest. Their concern is far more with content.

Educational television, in particular, and to a lesser extent educational radio, may introduce foreign couture. They may introduce new cultural influence that come into sharp conflict the old. The Indian satellite experiment illustrates this conflict vividly: what is the impact of educational television upon people, children and adults, in villages formerly entirely remote from such influence? The Indian government showed great interest in this question, whereas, regrettably, not enough interest in it was displayed by the United States government years ago when educational television was brought to American Samoa for the first time. Similarly, the Ivory Coast Project contain cultural conflict as classroom teacher's authority is challenged by that of the broadcasts, prepared by teachers who are better qualified and , reputedly, more able to teach. In the Ivory Coast, there is also conflict between a national language, French, which is both medium of instruction an vehicled of a foreign culture, and local languages, of which there are many.

The Ivory Coast educational broadcasting project is, of course, a case study of the influence of a metropolitan foreign culture, the culture of a former colonial power, France. Mauritius is another example, where both British and French influences have shaped educational broadcasting. The fact, foreign cultures continue to exert influence on many educational radio and television systems because of the former dominance of certain countries in the field of educational broadcasting. The case studies of the Republican of Korea. Mexico and Nicargua, may not be sufficiently detailed to provide absolute proof of the strong influence of the United States upon educational broadcasting in those countries, yet all contain significant traces of cultural effects, whether in their approach to planning, in their structures, or in their programming. This is hardly surprising when so many of

the staff in charge of educational broadcasting systems there have been trained in the United States. Similarly, Canada has been influenced by both the United States and the United Kingdom. In Sweden, the Utbildningsradion otherwise known as the Educational Broadcasting Company has been influenced by European practice, not lest in the United Kingdom, and, to a lesser extent, by North America. All educational broadcasting systems posses uiqueness and their own cultural identity, but within many are clear traces of foreign culture, for better or for worse.

Educational factors

It hardly seems necessary to stress educational factors. Government policies in education have great impact upon educational broadcasting, both television and radio. Consider, for example, national admission policies in the formal education sector. Who should be taught? Most countries in recent years have returned to their sixties goal of achieving universal primary education; secondary and tertiary schooling, after a decade of rapid expansion, now after receive lower priority in the interest of democratization. Yet the demand for education at these higher levels has not slackened. Educational broadcasting may provide a way to supplement existing provision. The El Salvador project was aimed at such supplementation.

Admission policies are not as clearly defined in the non-formal sector, in the sense that participation in, say, a Tanzania radio campaign concerning health does not require formal admission: all are welcome. Nevertheless, decisions about non-formal target audiences are made on educational grounds in part, and influence educational broadcasting for this sector too.

What is to learned? Curriculum policy, itself itself influenced by many cultural factors, also has an impact on educational broadcasting. In most countries,

broadcasting organizations and sections of ministries collaborate in attempted to relate programmes to national or regional curricula. Where these curricula are clearly defined, and particularly if they are nationally agreed, it is possible to active fairly close integration. But there are examples of countries with centrally controlled curricula where integration has still proved difficult: Chapter10 on Japan illustrates this. Perhaps the best examples, in this volume, of broadcasting integrated entirely with the classroom curriculum are the Nicareaguan and Ivory Coast projects, yet these are special cases because the classroom curriculum was not the standard one, being specially devised for the projects.

In the non-formal sector the curriculum for educational broadcasting is usually the result of deliberation among interested parties, including the students in some instance. A special curriculum was compiled for the Indian experiment; the research that went into sampling curricula for the Children's Television Workshop is legendary. In both these cases curricula are based on careful consideration of the needs of target audiences. The same could be said about the programming for adults by the BBC in the United Kingdom the adult education broadcasts of UR in Sweden and the work of the Ontario Educational Communications Authority for adults in Canada. All use a variety of methods to determine curricula. The older ones have substantial experience in nonformal education to draw upon too.

Who shall do the teaching? Who shall teach in the classroom and who in the studio? In the classroom, stiffing policies may dictate that less qualified teachers shall depend upon broadcasts to instruct students. This is the pattern in the Mexican telescundaria where relatively poorly trained teachers are asked to monitor or supervise classes at a higher level than they would normally be

expected to handle. These classes are taught by television for a part of the day, and the classroom teachers have the tasks of preparing students for the broadcasts and insuring that they complete followed-up activities prescribed by the broadcasters with the backing of the Ministry,. By contrast, classroom teachers are not displaced in the Mexican manner during Nippoh Hoso Kyodai's broadcasting on television and radio for schools. The programmes are intended instead to enrich lessons, and teachers take great interest in learning how to use them for this purpose. On the other hand, teachers are dispensed with altogether in the NHK Gakuen Correspondence High School, excepts as correspondence tutors. Elsewhere, Ivory Coast classroom teachers are temporarily displaced, like those in the Mexican telescundaria, while television teachers take over at a higher standard. In Nicaragua, classroom teachers yield to the radio teachers, again at the higher standard.

Where staffing policies lead to displacement of teachers by broadcasting, sooner or later classroom teachers protest, often through unions that are among the most powerful in the land. In Mexico, the telescundaria classroom teachers sought pay equal to that of their better qualified colleagues who taught at conventional schools of the same level but without television. They did not gain all they sought, party because thy lacked union backing: i the end the government compromised and paid them slightly more than they had been receiving before. Similar problems occurred in El Salvador as a kind of backlash against the widespread introduction of television into the secondary schools. A proposal to use educational radio to replace teachers in Indonesia was dropped in the face of opposition from teachers and their union,. In fact, strong teacher's unions probably make it impossible for most national governments to employ educational broadcasting to achieve economies through

replacing teachers, wholly or in part. Teacher's unions, often a strong influenced in developing countries, may ensure that educational broadcasting is used mainly for enrichment purposes, at least in the formal sector. Where the power of broadcasting has come into conflict with the power of teachers in the classroom, the teachers have won, with few exceptions. In the classroom, the teachers are still doing the teaching.

In the studio too, teachers frequently do the reaching, for both formal and non-formal sectors. That is to say, teachers are employed as presenters, whether by a minister of education, by a college with its own broadcasting station, or by a broadcasting organization. This is not to say that professional presenters, actors, famous people and others are excluded from the studio, nor that educational broadcasting consists largely of teachers talking to camera or microphone. But teachers, usually selected for their ability as expositors, play a major role in creating and presenting educational programmes in many countries. They may also give educational broadcasting greater credibility in the eyes of their classroom colleagues. Their influence cannot be ignored: they are the principal collaborators with professional broadcasters, particularly programme directors, yet the two often conflict, as many of the case studies illustrate.

Who shall judge the effectiveness of educational broadcasting? Usually the judges are not broadcasters but educators, at least for the formal sector. Broadcasters but educators, at least for the formal sector. Broadcasters set their own standards, and judge their own programmes and those of others by these standards, but the ultimate criterion is student achievement. To judge standards, but the ultimate criterion is student achievement. To judge student achievement is difficult and is not usually left to the broadcasters. In some of the case studies, special

teams were set up to carry out this evaluation but fundamentally evaluation is a matter for teachers and their supervisors. Results of evaluation can be used powerfully to influence the future of educational programming.

Economic factors

If educational broadcasting contributes to national development through improving education, then this benefit may be set against its costs. But does it do so?

The relationship between education and economic growth was assumed for most of this century to be strong. In the fifties and sixties confident assertions came from economists and educators alike concerning the desirability of more education to fuel economic expansion, not least in developing countries. Moreover, the relationship between lifetime earnings of individuals and their level of education was believed to be strong too. Thus education received economic justification in addition to older and moral justification.

If education fostered economic growth, then surely educational broadcasting, as part of education, could be justified on economic grounds, the more so if it could be shown that broadcasting was a cost effective way of educating large numbers of children and adults, preferably at a lower per capita cost than through face-to-face teaching in classrooms.

Perhaps unfortunately for educational broadcasting, some doubt is now being cast on the strength of the relationship between education and national economic growth. With rate exceptions, developing countries that have devoted large portions of their national budgets to education have not been rewarded by economic expansion. Recent studies of lifetime earning also cast some doubt on the idea of personal investment in

education, although in many countries the generalization that better jobs go to better educated people apparently still holds. In some, the over-supply of university graduates and even of secondary school leavers is notoriously large. Finally, doubt is being expressed about whether educational broadcasting can indeed be justified on ground of cost-effectiveness except under certain conditions. It is difficult, as Chapter 6 and 7 demonstrate, to ascertain costs and effected, yet both must be considered by decision -makes in reaching judgments about economic factors related to educational broadcasting planning.

It is worth noting briefly here the distribution of costs of educational broadcasting and who bears the burden of them. Rarely do broadcasters pay, although this is the case in Mexico and a few other countries. In some countries , it is the Ministry of Education that pays broadcasting organizations to produce and transmit programmes. In other, different government agencies provide the subsidy, especially for non-formal programmes. Frequently, however, the full cost does not fall on the 'official provider', because broadcasting organizations or agencies controlling transmission facilities may only charge the marginal cost of providing their services. That is to say, they set their charges at a level lower than that which would be needed to offset all costs, including depreciation of capital equipment, administrative overheads, etc. They spread such basic costs across their main production, and charge additional programmes, such as those for education, at the cost of what they have to pay out to make those programmes. Cost-effectiveness studies prior to 1978 frequently included only marginal costs, thus possibly exaggerating apparent benefits from educational broadcasting. Cost analysis of conventional schooling was not very through either, however, therefore the degree of exaggeration that existed in comparative studies is far from clear.

In general, costs of educational broadcasting have not fallen at all upon the consumer, that is, the student, whether in the formal or nonformal sector. There are a few rare exceptions in formal education: the British Open University, in charging its students fees, could be said to be recovering a small proportion of the money it pays each year to the BBC to make and broadcast its television and radio programmes. The balance of funds needed comes from government subsidy. The Latin American 'radiophonic' schools, operating in the non-formal sector rather than the formal, collect fees too. In Japan, the NHK Gakuen Correspondence High School charges fees. But in all these cases, it would be reasonable to regard the fees as covering the cost of tutoring an perhaps printed material, rather than broadcasting. In no case is the total of educational broadcasting met by students.

Cost are increasingly a constraint upon educational broadcasting. For example, although electronic equipment is becoming cheaper in real terms, technological change can be very costly. The switch to colour in television has implied relatively greater costs, particularly of receivers, compared with black and white. This is a serious problem for developing countries: they cannot continue much longer with monochrome equipment . Manufacture of television transmission equipment is concentrated in a few countries. Most developing countries do not even make their own television receivers. Problems of foreign exchange, particularly the acquisition of hard currency, accompany those of rising costs and the international recession in the face of the oil crisis.

Developed countries seem likely to benefit more, too, from the impact of new high technology on educational broadcasting. In Canada. For example, cable television now provides up to their -six channels to rather more than half the population, thus to some extent

relieving educational television of its need to search
desperately for suitable air time. In the same country,
satellites bring health and other community-oriented
programmes to remote villages. Video-recorders, video-
discs and teletext, using new forms of electronic storage
and transmission, coupled with old forms, posses great
potential for educational broadcasting, at least in
developed countries. These countries are likely to
increase their dominance as producers of equipment and
programmes; the North-South dialogue will have to be
more effective than to date if developing countries are to
participate in and benefit from the communication
revolution that seems to be occurring beyond their
borders. At present, in the field of educational
broadcasting, economic factors create another gap
between North and South.

Technical factors

Education broadcasting cannot be effective if it has
extremely limited access to wavebands and/or air-time.
Access to wavebands is a technical problem: the
proliferation of broadcasting stations has led to
increasing discussion at international level as interference
has become greater. Educational broadcasting,
particularly where it serves minority groups and small
audiences, has not fared well in the debates. Air-time,
particularly during peak hours, has become scarcer,
under pressure from professional broadcasters to remove
educational programmes to times that are inconvenient
for students, leaving peak times free for general
broadcasting. There is a crisis in public broadcasting,
from which much educational programming emanates, as
audiences are lost to commercial stations and costs rise.
In the non-formal sector in particular, students who have
jobs find they have to listen or view in the early morning
or late at night. The problem is less sever for students in
classrooms operating during daytime, since these hours

are usually considered to be off- peak and are more readily released by broadcasting schedule controllers.

There is no doubt that improved recording equipment can offer technical solutions, at a price, to these problems of access to waveband and air-time. The issue that then arises is more economic than technical: who will pay? If a student has to buy a recorder, or even a player of records, of whatever type, this is an additional cost that may deter him from studying. Yet clearly few organizations can afford to provide such equipment to large number of students, except perhaps at the basic level of a sound tape-player or recorder. As a compromise, they may install equipment in some central place or places and require students to attend to listen or view, thus losing the advantage that broadcasting possesses of reaching into student's homes.

The search for large audiences and for economies of scale induces broadcasters, including those in educational broadcasting, to ask for national, or at least regional , coverage. This too may be a technical matter, involving the linking of stations in networks or perhaps the construction of additional transmitters and repeaters., The extent to which educational broadcasting is able to reach its students may have a strong impact on its perceived effectiveness. If some among a body of students cannot receive broadcasts, others may perceive these broadcasts as more or less necessary, with the consequence that broadcasters themselves feel less inclined to make programmes that can be deemed essential. To some extent, this has happened at the Open University, which, through problems of access and air-time is unable to designate as essential the majority of its broadcasts through the BBC.

Another technical matter is control of the supply, operation and maintenance of production and

transmission facilities: studios, control rooms, transmitters and so on. Control may rest with those who have little or nothing to do with educational broadcasting. Educational broadcasters may be wholly dependent upon advice from such technical personnel, who may be influenced more by general broadcasting and national communications policies then by those of educational broadcasting.

To an even greater extent. Control of receiving facilities, including the availability and maintenance of receivers and power supplies lies outside the domain of educational broadcasting. True, there are a few examples to the contrary: the Indian satellite experiment offers a case study of attempts to integrate technical aspects and control with all other factors being considered. Another example of massive foreign support, the Ivory Coast Project, made similar attempts, More usually, however, control rests in the hands of private manufacturers and individual consumers, who must be persuaded rather than coerced.

Choice of transmission systems has significant implications for educational broadcasting . Among the case studies in this volume are example of several different systems: the direct broadcast satellite system as recently used for one year in India the ill-fated attempt to use tethered balloons to carry high-altitude television transmitters in the Republic of Korea, the more conventional networks in Mexico or Sweden an the cable system of Canada and the United States.

Each system has its advantages and disadvantages from the point of view of educational broadcasting. Direct broadcast satellites can provide immense geographical coverage Anik-B in Canada spans the whole country, east and west as well as north south. They can also provide additional channels at relatively

low cost compared with terrestrial networks in sparsely populated countries. On the other hand, every receiver requires an aerial that is more expensive than the conventional, or it must be linked to a cable system that has a community aerial feeding signals from the satellite. The extra cost of the special aerial is small when spread across a number of students, or course, but to bring them together when they are widely scattered is to defeat the purpose of direct broadcast satellites, which is to broadcast direct to homes.

Cable television and radio certainly offer to educational broadcasting additional channels and air-time, but they also offer high-quality reproduction, as in say, the fine arts. On the other hand , few countries have cable systems that extend beyond a limited number of densely populated urban areas: the cable companies usually wish to offset the cost of laying comparatively short lengths of cable against revenue from a relatively high number of subscribers. Rural areas are at a disadvantage, even where cable systems are more fully developed, as in North America.

Finally, there is the matter of technical staff, who are in short supply everywhere. Appropriate facilities for training are inadequate. Countries receiving foreign aid to install up-to date educational broadcasting studios and transmitters find themselves without key technical staff to operate the new systems, which are promptly labeled white elephants by politicians- if the teachers have not said it first. Only a few countries offer training schemes. Nationals of developing countries returning home after intensive course using the relatively lavish facilities of, say, France, Japan, the United Kingdom or the United States, do not easily settle down to being operators of small systems without proper technical support, in countries where they were trained , or in the non-educational sector of broadcasting in their own country.

Thus the supply and training of technical staff is often a very real constraint in organizing and managing educational radio and television.

Integration with other media.
So far, this chapter has dealt with educational broadcasting per se, without much mention of integration of broadcasting with other media for educational purpose. Nevertheless, it is vital that planners should take a holistic view if they wish educational broadcasting to have maximum impact. Educational broadcasters can easily become isolationists: they may make and transmit the programmes and ignore what happens at the other media simultaneously, to enrich and reinforce the message of broadcasts. Educational broadcasting has been caricatured often enough as a process of one -way communication.

Against this tendency towards isolationism, it must be said that in recent years a good deal had been in may countries to ensure that educational broadcasts on both radio and television are integrated into the fabric of education, whether formal or non-formal. For example, most educational broadcasting is now accompanied by printed material of two or three kinds. There are textbooks or work-books for students in classrooms, and guides and schedules for teachers. The intention at least is that teachers will prepare students to listen or view, that students will respond actively during the broadcast and that teachers and students will follow up the broadcast in appropriate ways, if necessary using a variety of media beyond the printed word. In non-formal education, posters, broadsheets, pamphlets, books, records, cassettes, newspapers and magazines may be provided to assist discussion of the broadcasts, which may be radio farm forums and health campaigns of blockbusting documentary series on television.

Sometimes the listeners or viewers gather in group to receive the broadcasts, and conduct their discussions with the printed material to hand, as in the United Republic of Tanzania recently.

One of the foremost examples of integration of media exists in the Open University, and its analogues in other countries. At the Open University, educational radio and television programmes are tied to print, which is the dominant medium in the University's teaching system. In addition, where appropriate, these three media are supplemented by home experiment kits, audio -tapes, slides, computer- aided learning and so on.

Integration is not without its problems, however. Where television is the dominant medium in the teaching system it may drain off a disproportionate amount of resources, as in the University of Mid-American the United States, where a few programmes consumed most of the available money, leaving too little to support other activities in the system. Broadcasting organizations in general appear to have difficulties in allocating sufficient resources to print materials for use with education programmes they broadcast, although there are honorable exceptions. Studio directors, whose future is strongly linked to the quality of the programmes they produce, can be excused for not becoming authors and editors of the printed word as well. Administrators in educational broadcasting must surely take the wider view. NHK in Japan and the BBC in the United Kingdom have had some success in integrating print with their broadcasts in the formal sector. The Children's Television Workshop in the United States is turning more and more towards integration: it now uses many media to supplement and complement its television programmes, and markets them through a very wide range of channels. Its products can be found in bookstores, supermarkets, department stores, toy shops, record and

music shops and clothing stores, to say nothing of mail order lists. The Nicaraguan Radio Mathematics Project represents a very high degree of integration of just radio and print since student's progress through the workbooks is more or less controlled by the radio programmes.

Integration causes problems for teachers and students as well as broadcasters. Programmes that are linked tightly to texts, for example, must be aired at the right time, or else recorded and used when appropriate. Texts that depend on broadcasts are practically useless if for some unforeseen reason students cannot listen or view. The more tigtly integrated the media, the higher the risks of disruption of student's learning. Texts are usually under student's control except perhaps in some developing countries where they remain under teacher's controi. Broadcasts are seldom under student control in any way, and are often beyond classroom teacher's control, accept that both students and teachers can turn them off!

In spite of these difficulties, integration of the media seems likely to increase, particularly in developed countries where new forms of storage and transmission of educational information are becoming available at an accelerating rather. There is no doubt that the next decade will see these forms being used for education as well as for entertainment. Text, not necessarily print, will become more closely integrated than even with the sounds and moving images of television, not necessarily broadcast over the air. Integration will occur not only at the point of reception but also in storage, which will be vastly greater in capacity thank at present; therefore, new ways will be found for exploring what it contains

There has certainly been a lot of broadcasting directed at formal education. Most countries have a

schools broadcasting service, in some cases running continuously for over fifty years. Broadcasts have covered the whole school and in-service teacher training curriculum; every school age range has been served; and broadcasting has been used for a diverse range of teaching approaches. The output of programming for schools is probably grater today than it has ever been. But how effective is all this activity? Do teachers use it? Do pupils learn from it? What do we know about when it works and when it doesn't? What kind of report could we give on schools broadcasting?

Is there is anyone out there?

The minimum measure of effectiveness is whether or not the programmes are used in schools. No matter what the quality of the programmes, they need to be watched or heard to be effective. Since at least in Britain there is no centralised or 'core' curriculum that schools must follow, and since teachers have a good deal of freedom in how they choose to teach, it seems reasonable to assume that the programmes must have some value if teachers willingly make use of them. Cynics may argue that teachers use broadcasts because they are an 'easy option', avoiding the need a for lesson preparation, or because they 'keep the kids quiet'; even when programmes are used infaith of by teachers there is no guarantee that they will be more effective than 'ordinary' lessons. If broadcasting though is extensively used one must have a pretty jaundiced view of the whole teaching profession to assume that they are all using broadcasts as a soft option; and since most series run for at least two or three years, teachers usually have a pretty good idea of what the programmes are likely to offer.

Unfortunately, though, reliable utilisation figures for schools broadcasts are available from only a few countries. In 1977 the West German International

Institute for Educational Broadcasting carried out a
survey of schools radio in Europe. Questionnaires were
returned from 40 broadcasting organisations providing
schools radio throughout twenty countries. Of the 40,
only 16 had carried out or commissioned some form of
audience survey of schools radio within the previous ten
years. Only 7 reported regular surveys. As a result,
getting an overview of the use of European schools radio
is difficult. The same applies to European schools
television, and the situation is even more difficult in
North America where the organisation of schools
television is much more fragmented than in Europe.

Fortunately though schools broadcasting in Britain is
systematically monitored each year by the Educational
Broadcasting Council. Table 3 sets out equipment
statistics and the number of schools using broadcast
services in the United Kingdom during 1981 - 82. There
are several points to note from Table 3. First of all, the
information is reliable, being based on a carefully drawn
samples of schools with a high response rate (82 per
cent). Nearly all schools have radio and television
receivers and audio recorders, and most schools make at
least some use of schools television and radio. While
there was a slight decline in the use of radio in secondary
schools from 72 per cent using at least one series in 1978
to 66 per cent in 1982, this was more than balanced by an
increasing use of television. The proportion of secondary
schools using television rose from 85 per cent in 1978 to
92 per cent in 1982. More significantly, the average
number of series taken in each secondary school rose
from 8.6 to 13.3 over that period. The increase in
secondary schools using ITV series was particularly
marked - from 58 per cent in 1978 to 80 per cent in 1982.
This, though, did not affect the use of BBC programmes
in secondary schools, the proportion of schools using
their series also increasing, from 78 per cent to 90 per

cent over the same period. It is probably no coincidence that this increased utilisation was paralleled by a similar rate of increase of video-cassette recorders in secondary schools - from 70 per cent in 1978 to 96 per cent in 1982.

Television and radio broadcasts are used extensively in British school. Schools using radio are likely to take an average of nine television series, and secondary schools an average of thirteen, The equipment statistics are particularly significant because while the programmes are offered without cost to the schools, the schools do have to pay for the equipment and support materials. There was a rapid increase in the purchase of colour television receivers, audio recording equipment and video- cassette recorders in schools over the five years 1978-82.

Music, dance and movement, and drama programmes for primary schools appear to be the most used radio programmes in schools, and although there are exceptions, generally the younger the age range, the grater the number of children listening to a single series. 'Let's Move', a music and movement series for the age range 5 to 6, reaches over a million school children each year, as dies 'A study by the Schools Broadcasting Council (1979) found that of the primary schools that have religious assemblies, half rely entirely on the BBC radio series. Another two music series, 'Singing Together' and 'Time and Tune', approach the million mark in terms of audiences. These four series have audiences as high as most general radio series in Britain -for instance, the audience for each episode of 'The Archers' (a popular radio serial) averages around 1.5 million.

Radio is much less used at the secondary education level, the average proportion of schools using a radio series being only 10 percent. Only two series reached more than 20 percent of secondary schools in 1982, one an advanced studies geography series for sixth formers,

the other a series on electronics and micro-electronics for fourteen -to sixteen- year-old. Of the twenty-nine series made specifically for the secondary age range only twelve reached more that 50,000 pupils. Almost all secondary schools use only recording of radio programmes, and even in primary schools in 1982 the majority used recording rather than live programmes for most series.

The series with by far and away the largest schools audience in the BBC series 'Watch!', aimed at the age range 6 to 8, with more than three- quarters of the primary schools in Britain taking the series. As well as 'Watch!', two other BBC series, 'Look and Read' (age range 7 to 9 +) and 'Words and Picture' have audiences estimate at over one million school children. Another eight series have audiences of over half a million,. All in the primary age ranges. Schools television series are used by about 25 per cent of secondary schools on average, although three BBC series in 1982- 'Going to Work', 'Scene'. And 'Twentieth- Century History'- each reached over 40 per cent of secondary schools. As with radio, the larger audiences for schools television tend to be found in the lower age ranges, due to a large extent to the increased specialisation of subject in secondary schools, leading to a grater fragmentation of the target audience.

Firstly, foreign language series are the least used on television. Even allowing for some of the series being deliberately directed at a minority audience utilisation is surprisingly low in comparison with other subject areas. For instance, although many of the science series were aimed at sixth forms, their utilisation rate is almost double that of the language series. Even on radio, secondary school language series are used by less than 10 per cent of the schools. Taking then the audience research figures at their face value, schools television and schools radio in Britain have both cleared the minimum

evaluation hurdle: in many schools, for a side range of subject areas and age groups, extensive use is made of them.

The limitations of statistics on utilisation.

Audience figures are useful for providing a global picture of the success or otherwise of schools broadcasts. They provide useful information to broadcasting organisations on trends whether or not the use of broadcasting is increasing, or even whether a particular series over a number of years has gradually caught the interest of teachers. Audience figures can pick out particular successes or failures for series as a whole. They can be useful for justifying the use of broadcasting for schools within a broadcasting organisation of the figures can demonstrate that large numbers of children are watching or listening.

However such figures do not provide any clear indications of which educational functions or programming strategies are most appropriate for educational broadcasting. From the Educational Broadcasting Council's figures it would appear that most subject areas are suitable for treatment by television or radio. There are success and failures in each area. What we cannot tell from the audience figures is what learning has taken pace, not which of the various strategies outlined in the previous chapter have proved to be most effective.

Enrichment and learning resource

The overseas evidence

The most comprehensive review of the research in to the relative success of different strategies for educational television and radio has been carried out by Schramm. While Schramm was more concerned in that study with differences between media than with differences within a

medium, nevertheless his category supplementing the formal school system closely matches the use of television and radio as a learning resource and as enrichment. His analysis of the effectiveness of these two broad strategies drew on studies of television projects in the USA, Japan, Colombia and India, and of radio in Thailand. In each of these studies there were control groups, i.e. schools or classes matched as carefully as possible, their main difference being whether or not they used the programmes.

Each one of these studies showed that students receiving television or radio as a supplement to normal teaching scored higher on the various attainment tests used than students not using the television or radio programmes Schramm concluded:

Used as supplements to class room teaching, the media of instruction are effective. They work as well as other classroom teaching. Used in the right way, in the right place, for an appropriate purpose, they will improve the classroom experience.

A separate Japanese study, carried out by NHK, the Japanese broadcasting authority reviewed the Japanese research on schools radio during the period 1960-68. Again, comparing the performance of children who listened to schools radio with the performance of children who did not hear the programmes, they found that taking the studies as a whole:

There was little difference between classes which listened to schools radio for only on term, but after two terms or more the performance of classes who listened to the programmes noticeably increased in terms of the ability to read and write in Japanese and English, and in English the effect of listening was higher with students of higher intelligence that with those of lower intelligence. . . the education effects of the broadcasts were not invariant,

but depended on may factors: the quality of the programmes; the varying ability of school teachers to guide students in their use of the broadcast material; student's abilities and interests; and the length of the period of utilisation. Consequently, there were large differences from school to school on the relative effectiveness of school radio.

Both the Schramm and NHK studies clearly indicate that television and radio can lead to clear improvements when used as an enrichment or as a learning resource to supplement normal classroom activities. The NHK study, though, highlighted the fact that increased effectiveness depends on certain conditions being met, and this factor will gain increasing importance as more evidence is reviewed.

The British evidence

There is evidence from several studies that British teachers prefer to use broadcasts as enrichment rather that for direct teaching purpose. Cuff in a study of the use of a French series,' Le Nouvel Arrive', found that teachers specifically requested enrichment material. They were not interested in programmes dealing specifically with grammar. Very few teachers wanted the programmes to provide core material in a progressively structured manner throughout the year. The main desire, expressed by 62 per cent of teachers in the sample, was for material which brought the foreign country alive.

Cuff also compared classes that used 'Le Nouvel Arrive' with similar classes that did not, across six different schools. Since the main reason teachers gave for using the series was to provide background knowledge of France and the French way of life, Cuff tried to test the effects of the programmes in improving pupils' background knowledge of France. She was not able to show statistically significant gains between pupils who

saw the programmes and those that did not. She argued that this was partly because pupils generally already often had good background knowledge, and also because there were only eight programmes in the series, thus giving relatively little broadcast exposure compared with other sources of information. As often happen on studies of this kind, the differences in test scores within classes were often greater than differences between classes, making it very difficult to identify any effects clearly, due to difference in treatment. Nevertheless, combining test scores and her own observation of the classes, Cuff felt confident enough to suggest that it was not so much the programmes themselves but the role played by the teacher in exploiting them which was the main determinant of whether pupils derived benefit from them. This again is consistent with the Japanese findings reported earlier. Cuff also found that teachers generally wanted more advice from the broadcasting organisation on how best to use such broadcasts.

Perhaps the most surprising result, though, given he generally poor accents of British foreign language teachers and the lack of direct exposure of British children to foreign languages outside school, was the low priority the teachers gave to the statement: 'Television can provide a wide range of native voices.' Two third of the teachers replying gave this statement a low priority for language series, and few teachers in the sample looked to television to provide a good basis for linguistic work in the classroom.

Four studies carried out by the Schools Broadcasting Council, Educational Broadcasting Council, one on the teaching of English in primary schools, one on the series 'Merry-Go-Round', one on broadcasts and project work, and one on social studies, all confirmed the preference of British teachers for broadcasting as enrichment rather than for direct teaching, across a range of subject areas and age ranges.

One project however that did come near to direct teaching was the BBC Radio series 'Listening and Reading'. These programmes were intended to develop reading skills and an interest in books, particularly for children who came from culturally impoverished home backgrounds, where the ownership and reading of books was uncommon. The broadcast programmes were intended to be taped in the schools and listened to by individual children or small groups of three or four children at the same time as following the story in the accompanying booklets, Multiple repetition was considered important, as the producer hoped that the children would want to hear and read the stories again and again. In this way, the producer hoped that the children would use listening and reading simultaneously.

The stories were read in a straightforward manner by an adult actor, with no sound effects. The undramatic style was meant to approximate to that of an adult reading intimately to a small group of children. The accompanying booklets contained texts of the programmes exactly as they were broadcast, and there was a four-page leaflet for teachers explaining the theory and principles on which the series had been planned.

The first series was used by 4,736 classes or groups, In terms of school radio for this age range in Britain, this is comparatively low use. More importantly, few classes used the series in the way intended. In most schools, teachers used the broadcasts live because at that time the majority of infant and junior schools had insufficient recording or replaying apparatus in quantity or kind to make widespread the pioneer type of usage recommended. And consequently teachers were unable to provide any repetitions, or at best only one or two. Teachers found that only the best readers could both follow the text and listen at the same time. The rest were likely to distinguish only a few words, lose the place and

then give up trying to follow. Booklets were generally in short supply for a whole class and many teachers thought that the language and vocabulary of the stories were too difficult and the reading too undramatic.

One class in each of the two schools, though, was given special treatment. Through the assistance of the National Council for Educational Technology, each school was issued with extra recording equipment and adequate copies of the booklets to enable the programmes to be used in the way intended. These two schools were also frequently visited during the series by a BBC education officer and an officer from NCERT. The two teachers involved in the scheme were asked to keep notes of pupils progress and development over the project. From the teachers reports based on two terms work, the bulletin reported that improvements were noted in the structure of the children's language, development of written work, ad spelling , and by the end of the second term, according to the bulletin, the children had developed a remarkable increase in reading power. One of the two teachers reported that, by the end of the spring term, all but six of her thirty-eight top infants could read fluently- something which had not happened in her experience in that school before.

It is clear that, when planning this series, the broadcasters did not give enough consideration to the realities of school life. Teachers in 1971 did not have the resources to work in the way intended. When the resources and support were provided, reading skills seem to have improved dramatically, but because of the way the project was setup , it is not possible to determine whether this improvement was due to the special attention given to the two schools or to the technique being tried. Given the importance of what was being attempted and the hint of what might have been achieved, it was a great pity that more consideration was

not given at the time to providing support for teachers on a more wide spread scale. Closer liaison with local education authority advisers might have substantially increased the success of the project.

A rather similar study, but on a much larger scale, was carried out two year later, this time primarily on television. The main aim was to see what would be the effects if schools were provided with a reasonable and adequate level of equipment. Special efforts were made by BBC and ITV education officers and LEA advisers to help teachers in selected schools to make more effective use of schools broadcasts. In this study, 118 schools took part, and the evidence was collected in the form of unstructured, open- ended reports from teachers. This evidence, which amounted to more than two million words, was then sifted and analysed by a retired Inspector of Schools. The report suggests that given the right conditions, broadcasts clearly stimulated children's language development, imagination, and enthusiasm for using languages and this could be reasonably interpreted as further evidence of the value of broadcasts for providing enrichment and assisting teachers in the development of language skills. However, the selection of evidence from the teacher's reports is highly subjective and it is impossible to tell from the report how widespread such effects were, nor is it possible to generalise to the great majority of schools in Britain which had not been provided with extra equipment and intensive contact from broadcast education officers and local advisers, Given the unsatisfactory nature of the enquiry, it is difficult to know how much weight to give to Hayter's conclusion, but they do not seem to be too much at odds with other studies:

> When teachers were given adequate equipment and support form advisers, the value of broadcasts became fully and progressively

recognised by the teachers during the course of the study.... using broadcasts well is no easy task: teachers need to be trained to make better use of broadcasting... a 'modest' increase in equipment improves considerably the perceived value of broadcasts... the existing copyright laws are a serious obstacle to better use of broadcasts in schools.

Enrichment of learning resource?

The 'enrichment' ideology is firmly held by most British educational broadcasters and their advisers. Because schools broadcasts are not didactic they allow children and teachers to respond to material in a wide variety of ways, according to the needs of individual classes, teachers and children. Using broadcasting this way enables many of the unique characteristics of television and radio- their entertainment value, their access to places, people, experiences outside the normal range of children- to be best developed and used. Broadcasters provide the resource; teachers and learners choose how to use it. This way, the autonomy of the teachers is protected. He or she is in control and not being dictated to by the broadcasters.

This is an attractive argument but one which we believe needs questioning. The distinction made in the previous chapter between 'enrichment' and 'learning resource' is important. There are quite different teaching strategies underlying these two approaches. Use of broadcasts as a learning resource suggests a more intensive and specific use- a point somewhere between the more casual enrichment approach and the more rigorously didactic approach of direct teaching. Learning resources programmes are less likely to be all thing to all men, but, where they are used successfully, their educational benefits are likely to be more profound than those of enrichment programmes.

However, there is evidence that when television or radio have been designed much more deliberately as learning resources there have been real problems. Taking all the studies as a whole, for school broadcasts to be successful, certain conditions must be met, and for learning resource broadcasts. These conditions tend to be more demanding, in that if they are not met, the programmes are more likely to fail completely. If though the conditions are met, the educational impact of learning resource programmes can be much greater than that of enrichment programmes.

Some of the necessary conditions for programmes of the enrichment and learning-resource type are indicated by the research studies:

(1) adequate provision of recording and replay equipment:

(2) more direction or suggestions to teachers on how such material might be used, specific to each series:

(3) more initial and in-service training for teachers on the use of broadcasting:

(4) adequate time to enable the full impact of a series to accumulate.

Unfortunately, there are still major difficulties that teachers often cannot overcome, even when they want to use programmes as a learning resource and are provided with adequate equipment for recording and replay. To make the most effective use of television and radio as a resource, the teacher needs to build in such material from the outset, when planning a syllabus or a project. This requires adequate information or advance warning, particularly of the programmes are to be used on transmission and not as recordings.

Secondly, only programmes classified by the broadcasting organisations themselves as educational an

be legally recorded off-air in Britain. This can be particularly frustrating since so much of the material that teachers would like to use as resource material comes from general broadcasting. Until the copyright laws are changed the use of television and radio as a learning resource will continue to be limited.

It is now possible to buy or hire video- cassettes of a wide range of BBC general programmes from BBC Enterprises. However, it would cost a school about 400 to hire for instance the 13 programmes in the BBC 'Life on Earth' series just for one week. And nearly 1500 to buy them! Such pricing puts systematic use of recorded general broadcasts beyond the reach of most schools.

Despite the difficulties, some teachers are still willing to go to considerable trouble to use general broadcasts, so valuable can the material be for them. For instance, when my son was in a middle school, his teacher organised a project around the 'Life on Earth' series. It proved though to be a good example of the difficulties teachers face in using general broadcasts. Because of copying restrictions, the children working on the project were asked to watched the programmes at home- with the inevitable consequence that many children missed the programmes . Although there is an excellent book written to accompany the series, it is expensive, and written at an adult, advanced level. What would have been useful would have been a resource pack with photographs and drawing of animals and plants, and their habitats, together with suggestions for children's activities. This excellent series contains unique film, from all over the works of rare creatures an plants in their natural habitats. The programmes though were largely paid for from money raised from the British public through the license fee. It is absurd that teachers are effectively prevented from using such material in recorded from, because of copyright and cost restrictions,

when the children's parents have already paid for the production costs of general programmes, through the licence fee or purchasing advertised products. Broadcasters and performers are inhibiting the use of broadcasting as learning resource material through their greed.

On the other hand, even under good conditions. The educational impact of transmitted programmes used for enrichment seems to be nebulous or marginal, providing a teachers with an 'enrichment' programme is rather like someone with be churlish to refuse, but it doesn't help much. It is difficult through to see schools broadcasters themselves moving away from programmes of the enrichment type because they reflect the same styles and approaches to programme-making found in general television and radio. Enrichment programmes also reinforce the distinction between the broadcasters role and the teachers' role . Successful utilisation of enrichment programmes is clearly seen as the responsibility of the teacher, allowing the primary activity of producers to remain making programmes.

Deliberately making educational programmes as a learning resource though requires greater attention to be paid to questions of utilisation, teacher training, linking of programmes to text books, and production styles which encourage programmes to be stopped while activities are carried out. Greater input from teachers in the design of such programmes is necessary. This though would blur the organisational boundary between broadcasting and education, and would require more in the way of resources and producer time on activities which are not so immediately and obviously related to programme-making, such as integration with text books and detailed follow-up activities. However, the advent of video-cassettes and audio-cassettes now encourages the development of non-broadcast audio-visual learning

resources. If broadcasters are unable or unwilling to develop materials for use in a learning resource mode, they may find themselves by-passed by other production agencies in the future.

Meeting special needs and deficiencies: The evidence

Despite the prevalence of the enrichment approach in British educational broadcasting, there has been very little research into how teachers make use of such material in normal working conditions, nor into its effectiveness. On the other hand, although programming for special needs is far less common, this is one of the better researched areas of British educational broadcasting, thanks largely to the IBA fellowship scheme.

Race relations

Teachers often feel unqualified, or appear to welcome assistance, when dealing with race relations within schools. Many teachers have no formal training in this aspect. Indeed, teachers often live in areas different from those in which they teach and hence have no direct experience of immigrant or ethnic communities except through the teaching context. It is fortunate then that one of the best research studies on British schools television was carried out on a Granada television series, 'Our Neighbours', aimed at the age group ten to thirteen. The researcher was an IBA Research Fellow, Graeme Kemmelfield.

The programme chosen by Kemmelfield for his study was 'Our Neighbours from Pakistan'. This showed children living in Pakistan, and a Pakistani family settling in the United Kingdom. The programme emphasised strongly the influence of the Islamic and indigenous culture on the everyday life of Pakistani families in Britain. Kemmelfield's study aimed to find out

whether exposure to the programme promoted more informed understanding and sympathetic appreciation of this ethnic group. The study was as much concerned with attitude changes as with cognitive learning.

Kemmelfield used pupils in four schools in the Manchester area for the study, and there were important differences between the schools. Because previous research had shown that the density of immigrant population within areas of residence was a crucial factor in influencing the racial attitudes of Anglo-Saxin English school children. Kemmelfiedl used schools from both high and low immigrant population areas. More importantly, one of the two schools located in the high immigrant areas actually had a low proportion of immigrants in its intake. The results from this school were similar to the results from the two schools located in the low immigrant areas, whereas the results from the fourth school, the only one with a high proportion of immigrants in the intake, were quite different. In this last school, 28 per cent of the intake were of Pakistani origin, and this school was the only one which gave specific instruction on the Pakistani way of life and had a Pakistani teacher responsible for special English classes. The results from this school were consistently different from the results from the other three schools.

One result common to all four schools was that 80 per cent of the pupils 'trusted' the programme about Pakistanis, and only a small minority thought the programme was 'manipulative', by trying to change their minds about Pakistanis. In the three schools with low immigrant enrolments, the programme was not only well received by the children but was also highly effective in conveying information about Pakistani customs and ways of life. In the fourth school, while some knowledge gains were still found, these were small, since the Anglo-Saxon pupils' initial knowledge of Pakistani customs was already high.

With regard to the impact of 'Our Neighbour from Pakistan' on pupils' attitudes towards Pakistanis, the results were more complex but nevertheless important. In general, before exposure to the programme, children in the high immigrant enrolments school were more tolerant towards Pakistanis than children in the other three schools. After the programme, there was a clear increase in more favourable attitudes to Pakistanis in the three low immigrant enrolments schools, but in the fourth school, the programme led to more uncertainty in pupils' attitudes. Similarly the programme resulted in less demand for racial conformity in the three schools with low immigrant enrolments, but again caused much more uncertainty about this issue in the fourth school, where pupils had been much more tolerant of different racial customs. Also, in the three low immigrant enrolment schools, there was a tendency after the programme for more pupils to agree with statements which suggested that Pakistani children were as likeable as Anglo-Saxon English children and that the two groups should mix more together. This result was not repeated in the fourth school, where the pupils were already well familiar with Pakistani children and customs, and the programme did not affect their views on this issue one way or the other.

This study shows that programmes can change attitudes and lead to knowledge gains when there is a lack of knowledge to begin with. It also shows the highly complex ways in which pupils can react to the same programme. Kemmelfield commented that pupils responded to the programme in a relatively personal and exploratory manner and not just in terms of stereotyped group feelings and thinking. For instance, while in the three low immigrant enrolment schools there was a general shift towards accepting that cleanliness was important to Pakistanis, the same pupils reacted strongly against Pakistani eating habits, as portrayed in one particular sequence of the programme.

Kemmelfield concluded that such programmes are likely to arouse conflicting feelings and opinions in any group of children, and that, in such circumstances, the classroom teacher needs to respond with skill and sensitivity in order to make creative use of such material. Kemmelfield's research shows quite clearly the tremendous potential of television for dealing with the increasingly critical area of race relations in British schools - and also how essential it is to base such programmes on well-designed research if they are to lead to better rather than worse race relations.

Non-academic school leavers

When the school-leaving age was raised from fifteen to sixteen in Britain in 1973, teachers were faced with the challenge of providing appropriate and relevant teaching for non-academic pupils in their last year at school. The Granada TV series 'Decision' aimed to encourage school-leavers to make active, informed decisions about personal and social 'real-life' issues. Jane Steedman, another IBA Research Fellow, carried out a study of one programme in this series which dealt with buying a house. This, like Kemmelfield's, is one of the better designed studies on schools television in Britain.

An unusual feature of Steedman's study was a critical analysis of the objectives of the programme and its style in relation to its objectives of the programme and its style in relation to its objectives. Steedman's study in fact turned out to be highly critical of the programme. She found that the programme actually had the opposite effect on those who viewed it from what the programme was intended to do. The programme's overall aim was to help young people to make their own decisions and to see the relevance of certain decisions to their own decisions and to see the relevance of certain decisions to their own lives. She found though that those that viewed

the programmes tended to greater conformity and acceptance of the views of 'authority figures' in the programme and to what she called 'restricted decision-making strategies' - i.e. less willingness to consider a wider range of decision option - than those who did not view the programme. For instance, the programme presented a choice of which three houses to but - but 70 per cent of the leavers lived in rented accommodation, and for these pupils Steedman claimed that a more realistic decision would have been whether or not to but at all.

Steedman claimed that the style of the programme - a documentary format, but with an authoritative and advice-giving commentary, using primarily authority figures - led to stereotyped responses to the programme and to a narrowing of the pupils' decision options. She argued that this discrepancy between programme objectives and outcome was due firstly to the teacher-adviser's original ideas for the programme — a bombardment of competing points of view — not being translated into the actual programme, and secondly to the failure of the producers of the series to analyse carefully enough what is actually involved in 'free' decision-making. She pointed out that if the aim really was to help people make their own decisions, it's best not to tell them what they should do.

Steedman's study is interesting for a number of reasons. One reason why the programme seemed to fail was because of the producer's lack of familiarity both with the target audience and the topic, and, related to this, the failure to make the programme in the way proposed by the teacher-adviser. Secondly, the producer was clearly dealing both with a difficult topic and a difficult target group, and, in such a situation, the programme appears to have suffered from a lack of pre-production research, or at least some pre-testing, to

identify the audience better and its likely response to certain topics and approaches. Lastly, the study shows the importance of the relationship between production style and programme objectives; in this case, the programme style seemed style seemed incompatible with the programme objectives.

Handicapped children

Unfamiliarity of producers with a special-target audience, failure to realise programmes along the lines originally suggested by teacher-advisers and inappropriate production styles, are also features found in some of the research into programmes used for teaching handicapped children.

This is an area fraught with difficulties for broadcasters. 'Handicapped' covers a wide range of disabilities, including severe physical or emotional handicap, children with language disorders and those with low mental abilities. Thus within the heading of 'handicap' or 'special education' he many sub-groups. Nevertheless, the total numbers are substantial. The Warnock Report on the education of children with special needs estimated that as many as 20 per cent of all school children are in need of special educational help at some stage of their school career.

Despite the difficulties with such specialised, fragmented audiences, British broadcasting organisations have transmitted several series which have been used with handicapped children. Yorkshire TV's 'Insight' was aimed at hearing-impaired and slow-learning children in the middle-school range. BBC's 'Let's Go....' was aimed at young mentally-handicapped adults, and BBC's 'Television Club' and 'Capricorn Game' are used with slow-learning children in secondary and primary schools respectively. There have been several studies into the use of television for handicapped children. Edwards

identified which programmes were used with handicapped children and how teachers adapted these programmes for use with their pupils. Porter studied slow learning children's attention to educational television programmes and the techniques which appeared to hold their attention, and Hill evaluated the 'Insight' series. Tucker investigated the perceptual requirements of blind and deaf children when using television and technical ways in which such children may be helped. Finally, Spencer and Clarke, of the University of Hull, evaluated the impact of 'Let's Go....

These research studies have been well reviewed by Proter, herself a teacher of handicapped children. She argues that from a teachers point of view, television has tremendous potential for teaching slow-learning and handicapped children. A well-designed programme can provide carefully ordered sequencing of events, controlling and organising information in ways that enable the child to comprehend what is happening, through simplifying what in the 'real' world are often complex events and processes. Similarly, programmes can carefully structure language and reinforce it with appropriate visuals. Television can provide models of how to act in certain common situations, a function particularly important for emotionally disturbed children. For physically handicapped or institutionalised children, television is particularly valuable for providing compensatory and vicarious experiences not otherwise available to them. Some of the more general characteristics of television are also important for handicapped children and carry over to educational programmes. For instance, it is often much easier to gain and hold attention through television than through other means available to the teacher. Porter points to what she calls the 'social inclusiveness' of watching television: for once, handicapped children can do what everyone else

does. Lastly, Porter argues that, for handicapped children, television provides security and confidence: watching the same characters doing the same things each week is reassuring for many such children. It is also non-threatening: it never tells them off!

However, Porter claims that television is not used as much as might be expected by teachers of handicapped children. For instance, Hill found that very few schools for slow-learning children appeared to use the programmes in the 'Insight' series, a fact supported by the Educational Broadcasting Council's Annual Survey, 1979-80. From her review, Porter identified a number of reasons for television not being more heavily used in special school.

Programmes contained too much information for the children to assimilate and teachers found follow-up work difficult because individual children had focused on different information. Programmes were too fast, with too much happening on the screen and sound-track for the children to pick up the main teaching points. Handicapped children need longer to assimilate and process information than normal children; they also need constant repetition of the main teaching points. The language was too complex for handicapped children to follow and understand. Teachers often had to interpret what was said in the programmes in order to help their children understand. There was a lack of visualisation of ideas: too often most of the teaching information was given verbally. While the picture shown was actually secondary in terms of context. It should be the other way round given the large proportion of slow-learning children with language difficulties. Similarly there was often all lack of co-ordination of sound and visual channels: in frequently, the two channels did not correspond in terms of context. The handicapped child becomes confused if the verbal message does not

correspond exactly with the visual information. A frequent complaint from teachers was that insufficient care was taken rega.ding sequencing. Edwards remarked that 'Life does not always happen in orderly sequences, but for their comprehension it needs to be presented so.' Many teachers commented on the lack of any clearly defined sequence or structural logic between the different section of the same Programme.

From her own experience as a teacher adviser to the 'Insight' series. Porter suggested several reasons for the failure of programmes for handicapped children. Producers have no experience of teaching such children, and this lack of knowledge cannot be compensated for by a few school visits and brief encounters with teachers - advisers. Even when adviser and teachers do have comments to make, these are often not implemented in the Programmes itself. 'Traditionally it has been the broadcast companies who have had control of ETV production and most educators feel that can have little real say in what is produced' Lastly, she argues that there is a lack of systematic formative research before programmes are finalised, but pre-testing is essential when dealing with such special-target groups.

With regard to this last point. It is interesting to note that 'Let's Go...' was the only one of these series tested before transmission, and pre-testing did lead to major changes in the style and tone of the transmitted programmes.

Even allowing for the very special needs of handicapped children, this research identifies perhaps more clearly than any other some of the strength and weakness of broadcasting in education in British. It is clear form these studies that British schools broadcasting has in recent years been skillful in identifying areas of special need and has tried to provide useful material for

teaching in these areas. Television and radio have been used to help improve racial understanding and to teach non- academic school- leavers and handicapped children of various kinds. In all the cases examined. The studies confirmed the huge potential of television and radio for providing substantial help in what teachers themselves recognise to be difficult areas.

The research has also shown that such programmes require great care and preparation. In particular, very accurate knowledge of the target audience is necessary. Kemmelfield highlighted the complex ways in which pupils reacted to a programme and the consequent need for the classroom teacher to respond with skill and sensitivity if the impact of the programme was to be creatively harnessed. Steedman found that the programme she studied failed because the nature of the target audience and how decision are actually made were not fully understood by the production team. The studies on programmes for handicapped children also suggest more failure than success, again due to inadequate knowledge of the target audience and a failure to take into consideration in the design of programmes the special needs of such children.

It is of course because such areas are difficult that television and radio can be so useful to teachers. However, broadcasting will only be useful if the programmes actually help the teacher and tackle the problems effectively.

Once a series has been decided on by the Advisor Committee to the various broadcasting organisation. He then visits a few and talks to a few teachers and possibly consults some books an other programmes. Then the producer, after consultation with other production colleagues, prepares a script an produces the programme. It is then previewed by senior production colleagues an

possibly by an education officer, and then transmitted. It seems though that, at least for programmes which are intended to meet special needs, the conventional production process is inadequate. Much closer teacher involvement, and, above all, adequate formative research before finalising the programme, appear to be essential. Programmes aimed at meeting special needs then are likely to require more resources and a longer production period, and to be more demanding on producers than the usual schools broadcast. It is a high-risk area but one where broadcasting could be particularly valuable for education. Period that broadcasters are willing to change their current approach.

Direct teaching and curriculum reform: success at a price
While exhaustive research on educational broadcasting in developed countries is very rare, the use of broadcasting for direct teaching in developing countries has been extensively researched.

Most of these evaluations have been based on comparative measurements of performance, either before and after the introduction of the new system, of between pupils covered by the projects and pupils receiving conventional education. Many of the studies provide details cost analyses and general data on the countries economic, social and educational development problems. Schramm has collected together and analysed the research evidence from several of these projects, and Arnove presents an excellent critique of the use of television for educational reform and development in developing countries, drawing on several of these studies. Consequently , we wish here to concentrate on some of the broader issues

Signals were to be bounced off reflectors attached to the balloons, providing national coverage for both educational television an radio programmes which were

to be used as the badis of a new, reformed school curriculum. However, the balloons proved to be aerodynamically unstable. The American Westinghouse Corporation, the main contractors, agreed as compensation to provide equipment for a more conventional ground- based system. However this delayed the opening of the educational radio and television networks from 1976 to 1981. In the meantime, the curriculum reform went ahead, with the result existing curriculum, rather than for direct teaching.

Taking the studies as a whole the use of broadcasting for direct teaching and curriculum reform has on balance led to substantial educational improvements in the countries concerned. The improvements took several forms:

(1) increased enrolment in the formal school system; for instance, in the El Savador project, enrolments is grades 7-9 increased from 20,000 at the start of the reform to 65,000 within five years:

(2) reduced drop-out after enrolment: for instance, in Niger, those pupils included in the scheme continued their schooling right through the five primary grades, with virtually no drop- outs; in El Salvador, of those who entered the seventh grade in 1970, 91 per cent continued into the ninth grade in 1972, compared with 68 per cent in 1969:

(3) educational standards, as measured by objective performance tests, were raised; in Nicaragua at all grades covered by the scheme, pupils taught mathematics by radio learned more then pupils taught in traditional classrooms, and these results were consistent across different types of school and levels of ability; in ETV Maranhao, ETV students achieved higher pass rates on public examinations than students from conventional private schools, although students in the ETV schools generally came from poorer families;

(4) on some projects, costs per student for broadcast based direct teaching projects were estimated to the lower than the costs for traditional education without deterioration of educational standards; costs for instance for the Telesecundaria system have been estimated to be 25 per cent less than costs for an equivalent conventional provision in El Salvador, by 1973. The cost per student using ETV was estimated to be about 10 percent lower than the cost per student had ETV not been used class size not increased and teaching load not changed.

Increased enrolments longer schooling improved standards at no greater costs than those found in conventional teaching, are substantial achievements. Such performance would be welcomed by many governments even in developed countries; given the difficulties that had to be overcome in the developing countries where these scheme have been introduced the achievements are remarkable. While one con quibble over some of the results, it is clear that direct teaching through broadcasting has substantially improved educational provision in several developing countries, within reasonable cost limits.

Nevertheless, doubts remain. Educational standards in some of these countries were appealingly low at the time of the introduction of the television or radio reform. Had the same amount of manly bed invested steadily in the conventional education system over a regular period of time the need for major reforms might not have arisen in the first place.

Where foreign aid has been provided through a bilateral agreement it usually covered mainly capital costs of for buildings and equipment, such as the construction of a studio complex and transmitters and production and transmission equipment. Such bilateral

aid was rarely in the form of an outright grant, so both capital and interest had to be repaid eventually, even if at less than market rates of inte.est. Often such aid was tied to the purchase of equipment and services from the loaning country. As the example from Afghanistan shows, initial equipment may be purchased at discount prices with the help of low-interest inter-governmental loans. However, the developing country then finds that the initial investment its insufficient to maintain or develop and adequate service; nevertheless, necessary subsequent purchases - often far exceeding the original investment- must be paid for at full cost in scarce foreign currency, usually through further loans negotiated at full market interest rates. Thus the developing country becomes reliant on foreign technology and loans, and the cycle of dependency and debt is strengthened.

International aid agencies, such as the World Bank and the United National Development Programmes, have generally been cautious in funding educational broadcasting projects which give the developing country more chance of obtaining direct economic gains from the investment.

Several developed count tries run training courses in educational broadcasting for which grants or bursaries are available from these countries and from international aid agencies. Again though training in well maintained, expensive and highly sophisticated Western production centers, in a foreign language is not always appropriate.

In the projects evaluated, though the main problems have arisen when the foreign assistance has ended. It has often proved difficult for the developing country to maintain a high standard of teaching and to integrate the projects into the main education system. The running costs of such projects is -pupils worksheets, teachers manuals, transport costs, salaries for production,

technical and administrative staff, the costs of TV or radio receivers, and the maintenance and replacements of equipment are rarely alone can far exceed the total of foreign capital aid. The national government then had to find large amounts of money, skilled manpower and administrative effort to continue such projects and several countries have found it impossible to maintain adequate services over a long period.

Many of the projects have been pilots or experiments. In such cases it has been impossible to assess the full economic costs and benefits or the operational difficulties or using broadcasting for direct teaching on a large-scale or continuous basis. Indeed, there is a disturbing tendency for developing countries to be used as yes-beds for advance technological applications that developed countries themselves have not been prepared to use extensively as witnessed by the South Korean and Indian satellite projects.

There are also doubts about the emphasis placed on television lather then radio on such projects. Two of the three countries that have used television for direct teaching and curriculum reform on a national scale, American Samoa and El Salvador are both small compact countries easily covered by a television transmission system and most schools are within easy reach of highways and electricity supplies. In the third country the Ivory coast considerable efforts had to be made to provide schools with suitable reception equipment. Special battery operated sets suitable for the French SECAM system, had to be designed and a sophisticated and costly maintenance system established. The Indian satellite project was restricted to villages with mains electricity supplies. It is extremely expensive to provide television sets for schools on a national basis, particularly if local generators have to be supplied where there is no mains electricity.

Radio on the other hand can operate on low-powered low-cost batteries. Furthermore while television is becoming much more widespread in Latin America and some South-East Asian countries, there are still many developing countries where the television signals cover only the main urban areas. Whereas medium and short-wave radio transmitters usually give a national coverage. It is though the poor rural areas where television does not reach which usually have the most inadequate educational provision. Television production, maintenance and distribution all require grater numbers of higher qualifies staff than radio, providing a drain on scarce technical manpower from other possible development activities. Television because of the high technical standards demanded also carries a much greater risk than radio of breakdown or failure. Radio then would appear to have several advantage over television for very poor countries apart form in Nicaragua though radio has not been used for direct teaching and curriculum reform.

The financial implication and the relative value of radio compared to television are general concerns for the use of the broadcasting in developing countries. There are also concerns specific to its use for direct teaching. The first concern is a practical one. Direct teaching by television or radio requires large amount of production and transmission time. At one stage the American Samoa project which introduced a whole television based curriculum for all primary grades in one year and all secondary grades in the next was producing 6000 live programmes a year. This meant programmes makers were making twenty programmes each per week. It is difficult to disagree with Schramm's comment that 'the enormous load of love programming must have had an effect on the quality of the broadcast's! In El salvador a production team was responsible for making three

television programmes a week. This still system over a twelve hour studio day to get enough programmes made in time. The Nicaraguan project required the production of between three and five radio lessons a week, for one subject alone. Most of the projects introduced direct teaching for one year-level or grade at a time, and ,specially when formative evaluation was used the programmes once finalised were recorded and used again in subsequent years. Even so production loads still tend to be heaving comparison with developed countries. For instance at the Open University, producers make only six to ten educational television programmes a year.

Furthermore, such production requirements even when spread over a one grade per annum, have a cumulative effect on transmission times. Five radio or television Programmes a week each of 30 minutes length require 2 and 1/2 hours transmission time for one grade and one subject. To cover six grades, 15 hours a week would be required for one subject. Given that there are limited time during the day when programmes can be broadcast to schools it would be difficult on one channel to accommodate more than two subjects over six grades.

A different concern is the educational limitation of direct, centralised teaching. While some subjects like mathematics which may have common standard learning objectives may lend themselves more to direct teaching other subject areas do not. For instance, development of communication skills such as language and imaginative writing demands more individual and less' convergent' responses from learners and consequently far grater interaction with the teacher and other children in the class. Above all though direct teaching ignores the social role of education. Teaching is not just about the transfer of information and the development of common cognitive skills. Many educators see personal relationships and social contact as an integral part of the

educational process. It is a legitimate concern that educational media and in particular direct teaching through television and radio could lead to narrow mechanistic instruction more suited to robots than to children. Furthermore, loading the whole curriculum on to television or radio means that the media cannot be used selectively, concentrating on those teaching function for which they are more suited and leaving other functions to book's or personal interaction between teachers and children.

It will also probable come as no surprise to learn that some of the direct teaching projects ran into trouble with teachers. In El Salvador after a favorite start the teachers showed increasing hostility towards the television reform which culminated in a two month strike; the telesecundaria teachers in Mexico had running battle with educational authorities for a more appropriate job classification and better salaries.

Lastly Lyle in looking back on the development of a number of television and radio projects first reported in 1967 noticed the movement of many of the original projects form direct teaching to using television and radio to supplement or enrich the work of the classroom teacher. He also noted that the more control teachers had over how and when to use television material the grater the chance of its utilisation. He also commented that the provision of material on cassettes greatly increase the control that teachers have which in turn leads to greater utilisation of television material a point noted earlier with regard to schools television in Britain.

It is however too sample to dismiss direct teaching through broadcast television as an inferior form of education. In many developing countries conventional teaching is mechanical based on rote-learning and accurate recall of fact or procedures which are often

totally irrelevant to the children and the society in which
they live. Teachers are often barely more educated than
the children they are teaching; the teachers will have
received little instruction in either educational theory or
practice, they will have very few resources such as text
books or equipments at their disposal. The provision of
cassette machines is out to the question for many of the
poorer countries. In such circumstances direct teaching
through television and radio may not only be more
directly effective but can also provide appropriate models
of teaching for them teachers. Teachers hostility has been
due less to direct teaching and more to poor working
conditions and low salaries. In El salvador teachers had
to take larger classes and work longer hours with no
increase in salary. In Mexico the Telesecundaria teachers
were drawn from primary schools but despite teaching at
a secondary school level, they were being paid led that
conventional secondary school teachers. In other direct
teaching projects such as Nicaragua more care was taken
with the teachers.

Direct teaching in fact does not necessarily mean
that social learning and group work are excluded. Most
direct teaching by television or radio is followed by
periods where pupils and teachers work together in more
conventional ways, reinforcing and developing material
contained in the programmes. The ETV Maranhao project
indeed is structured so that there is a great deal of social
interaction per-group dynamics and pupil leadership.
Each group elects a leader and a rapportuer on a
monthly, rotating basis. After each programme, students
work individually or in groups of six of seven. Group
leaders are expected to pose questions or suggest
activities to be carried our by individuals in the groups.
Although there are monitors, these are not qualified
teachers, and each monitor covers several groups. Thus
the systems depends on a good deal of discipline from

the secondary pupils. Oliveira reports that although discipline problems exist, they are fewer than in conventional school in Brazil.

One major reservation about this use of broadcasting in education stems from unease abou the political motivation behind such projects, rather that from doubts about the political motivation behind such projects, rather that from doubts about their educational effectiveness in terms of performance and costs. They can easily be seen as palliatives for problems which need much more radical solutions. It is exceedingly dangerous to think that even a massive injection of external finance and technical assistance for broadcast-based curriculum reform will make much of a dent of the problems of developing countries. For instance, five years after the first group of students had progressed entirely through the new system in El Salvador, we watched on our television set news film of government troops shooting done those very students on the steps of the cathedral in San Salvador. Whatever else the most throughing attempt to use television for national curriculum reform may have achieved, it did not tough the underlying social and economic problems of El Salvador. Such projects cannot substantially compensate for the problems caused by poverty, inequitable distribution of wealth, oppressive government and unequal international trade relations.

For politicians and administrators though who have to work with the existing socio- economic framework of their country, direct teaching by television- or better still by radio- is still clearly an option worth considering. Direct teaching by television and radio can assist curriculum reform, can increase enrolments and an raise educations, standards, at possibly lower cost than conventional alternatives. To do this, however, very demanding conditions have to be met, and the long-with financial implications can be serious. Lastly, adequate

long-term national financing is essential, and the teachers ultimately will need to feel that they have control over when and how television and radio are to be used if the innovation is to survive and lead to long-standing educational improvements.

Evaluating broadcasting in the formal school system is not helped by the unevenness of research. While there has been extensive evaluation of the use of broadcasting for curriculum reform in developing countries, the vast majority of schools broadcasting in Europe and North America has been unresearched. A good deal of the research that has been carried out on school broadcasting has been amateurish, or focused on a very narrow range of information, such as providing utilisation statistics or identifying the possible audience for likely new series. There has been very little research into what can best be learned through television or radio, into the most effective ways of designing programmes to meet specified learning objectives, or into the programme design requirements for specialist target audiences. Although formative research is an important component of the Agency for Instructional Television's approach in the USA, this is an exception in schools broadcasting. Many of the programmes in Britain that have been systematically researched after transmission were seen to have suffered from a lack of formative research., There was for instance often inadequate understanding of the abilities or needs of target groups and mistaken assumptions about the likely responses to the programmes. Although again there exceptions, in most countries the broadcasting organisations are largely responsible for the lack of research. Few have carried out research themselves into the learning impact of schools broadcasts. The main exceptions are AIT in the USA, the Swedish Educational Broadcasting Company and the IBA in Britain, through its fellowship scheme, though even

this needs to be strengthened through better research training and supervisor for the fellows, most of whom are seconded schoolteachers. Broadcasting organisations have also done little to encourage universities to research into this area. Regular contacts between university departments and broadcasters over a continuous period are needed if university-based research is to be relevant, appropriately designed and useful. Research is needed not only to help broadcasters to make more effective programmes, but also to help teachers and teachers trainers to make better use of broadcasting in the schools.

It is a great pity that more research has not been done. The lack of research makes evaluation difficult but, more importantly, research, when it has been carried out professionally and in collaboration with broadcasters, has often indicated what needs to be done to improve the effectiveness of programmes.

Despite the lack of research, several conclusion can be drawn. Firstly, broadcasting can be and has been used effectively for a wide range of purposes in the formal education system. Secondly, in Britain at least, school broadcasting is very extensively used by teachers and pupils. Indeed, there is probably greater use today of television broadcasting in British schools than at any time previously. Teachers in Britain clearly prefer programmes that enrich and supplement their teaching. It has been difficult to find evidence in Britain that this kind of programming has had much direct effect on learning, although studies overseas have been more positive.

One reason for the growing use of television in British school is the increasing availability of video recording and playback facilities. These facilities also make it possible for programme materials to be used much more specifically and effectively as learning resources, more fully integrated with and central to the

teaching than enrichment programming. This approach in schools though is still comparatively rare, and require different programme design strategies, provision of adequate recording and playback equipment , easier access to and better knowledge of pre-recorded material, and better training of teachers in the use of media as learning resources. Copying restrictions on general programming are a major obstacle to greater use of television as a learning resource. These restrictions make it virtually impossible to use general programming legally in schools. Despite a recent report for the government has chosen to ignore completely the educations. Issue regarding copyright of broadcast television programmes. It is not surprising therefore that there is a good deal of illegal use of general programmes in schools.

The research indicates that television could also play a vital role in meeting special needs within schools but it rarely manages to do so. Programme strategies are not usually adapted to the learning needs of such special target groups. Formative research, essential to successful programme- making in this area, is usually not done . Producers have often failed to make sufficient and appropriate use of specialist advice. This is a high-risk area, requiring greater skill and resources for often smaller audiences , but an area where broadcasting could make a major contribution to the formal school system.

Direct teaching by broadcasting is found almost exclusively in developing countries. When used in this way, television and radio have been associated with clear improvements in the educational service. However, for such projects to be successful, very demanding conditions have had to be met. Although direct teaching projects have been successful in performance terms, there are still considerable doubts about their wider educational, economic and political implications.

In contrast, there seems to be less controversy about the value of television and radio for in-service teacher training. Large number of teachers—in both developed and developing countries—have received further education and training through these media. Quite often, though, broadcasting is only a part —and sometimes a minor part of—multi-media courses for teachers. Moreover, teachers are already well-educated and so have probably developed sufficient learning skills to be successful independent learners. They are often also highly motivated to success through such courses, since successful completion usually leads to higher qualifications, higher statue and higher pay.

It can be seen then that television and radio can be successfully used for a wide variety of purposes, in a wide variety of contexts. However, in order for broadcasting to be used successfully, certain conditions must be met. Many of these conditions, such as the motivation of the target group, training of teachers in the use of media, the availability of equipment lie outside the programmes themselves. The use made of formative research and specialist advisers are very much under the direct control of programme producers.

3

Media of Mass Communication

A message can be communicated to a mass audience by many media. The ancient media are the printed materials with words and picture which communicate the message through the sense of sight only. Radio is one of the mass media which communicates message through sense of sound only. But television and films are mass media which are both visual and auditory in nature. There are no watertight compartments among these three kinds of media. All the media are inter-related both in functions and in personnel.

A newspaper can bring out an event flashed in a radio programme and a mews published in a daily may be highlighted by radio. Television can utilize a message transmitted both by the newspaper as well as radio with the same objective of bringing about adequate awareness. Similarly, a newspaper reporter having a good voice can become a radio commentator and a radio artist having suitable photogenic appearance can be a TV artist or a film star.

In this age of science and technology, importance of mass media cannot be overestimated. It is felt difficult to spend a single day without the use of mass media. Deferent aspects of our -social, political, economic, and even personal, are being influenced by mass media. Public opinion which is the driving force for turning the wheels of any government is moulded by various communication media. In a democracy no government

can afford to function, arbitrarily. The people at the helm of affairs must be restrained by public opinion. If they ail to work up to the hopes and aspirations of the common mass, counter forces begin to operate and threaten them with defeat in the next election. It is therefore rightly said that a democracy gets the kind of government that the majority of its people desire and deserve. Mass media work as an instrument for forming public opinion and expanding our national economy through advertising and publicity. They create as well as reflect people's tastes, needs and requirements which lead to industrial and commercial enterprises. All this promotes economic environment of the country.

Influence of mass media on social relations is extremely significant. No aspect of our behaviour, relationships and habits escapes the impact of the mass media. Our social conditions, neighbor relations, racial issues, student's tensions, marriage ceremonies, eve-teasing, cheap music, fashions in dress, food and so on, are constantly reported and discussed over mass media. Our curiosity to know and imitate is always apt to be influenced by the mass media, sometimes blindly. For example, a new style of dress worn by a popular star in a film can start a national fad and a cheap music on trivial matters like frivolity of ornaments or frailty for other sex may be played again and again.

Radio and television
Radio and Television are the most powerful media at present. Emery and others have rightly said," Television and radio are the electronic carpets that transport millions of persons each day to far away places. They are the twentieth century creations of the technological revolution that has been transforming much of the world for almost two centuries and their impact on our social, political, and cultural life has been profound." Radio and

television, although relatively new media, have already made their impression on world civilization very strikingly. It has been aptly mentioned that short-wave radio has linked the nations for years and now television is bouncing its signal of space satellites and using oceanic cables to transmit live telecasts to and from peoples the world over. Scarcely a country even in Asia and Africa, fails to receive and transmit television programmes. Despite the head start which the United States got in telecasting in the late 1940s families in this country today own fewer than half the sets in the world. The impending cultural, economic and political impact of a worldwide exchange or programmes, including virtually instantaneous coverage of important events in many countries, will be profound.

Radio and television can present the world in no time. These mass media have made dissemination of news, of information, of comment, of entertainment possible on a scale unprecedented in human history. A distinguished media expert, Narayana Menon has nicely observed, "The spoken word was rehabilitated with its full force- or nearly full force and just as the supremacy of sound was being accepted as the key actor in communication., Television overtakes it, the visual element asserting itself again. All this in ones lie time."

Development of radio

On of the pioneering attempts to transmit music and speech over a transmitter was made in 1915 by an American Company. Arlington, to a United States naval station to the Eiffel Tower in Paris, nearly 4,000 miles away. In England the Marconi Station in Chelmsford started broadcasting two daily programmes each of 30 minutes duration. In 1922, a Marconi Station was up in London to form the nucleus of the BBC. In the same year the British Broadcasting Company was formed and its

first service was Launched on November 14, 1922. With Mr. J.C.W.Reith as General Manager. This became very popular within two year and broadcasting rapidly became part of the life and the environment of the people. Its control and management became the matters of national concern and interest.

On January, 1 1927 the British Broadcasting Corporation came into being and its role was to act "as trustee or the national interest." Parliament was to have the right of ultimate control and Governors of the BBC were to have the maximum freedom possible. Mr Reith, later Sir Reith and subsequently Lord Reith was its first Director General with wide executive powers and worked as the key person with great vision ,initiative and imagination.

In the meantime, America witnessed a number of experiments in broadcasting. Although a section of people opposed the idea of commercial broadcasting and pleaded for making it a public service, advertising was found to be quite attractive in the medium. The commercial possibilities of broadcasting were profitably be explored by industrialists businessmen, churches and others. As many as five hundred station sprang up in the USA by 1924 and commercial broadcasting attracted the maximum audience.

A large number of broadcasting networks were set up on private enterprise and problems of control as regards wave-lengths, licensing and so on were confronted by the nation. Consequently, the Congress passed the Radio Act in 1927 and the Federal Radio Commission later redesignated as Federal communication commission was established to function as the controlling body having the power to issue licenses to new stations, to close down existing areas, to set down the ethics and guidelines or air broadcasting. On the whole American broadcasting is mostly private and more independent.

Radio came to India to India late, but not so late. A early as 1924 witnessed radio broadcasting in our country. Soon a Radio Club was formed in Madras and started a broadcasting service. In 1926 got the licences. The first station was stabilised in Bombay on July 23,1927. And the second one in Calcutta on August 26,1927. However, due to the then prevailing political conditions, expenses of the Company were more than the revenues as a result of which the Government grated a licence to the Indian Broadcasting Company was liquidated in 1930. But there was public protests and the Government took over the service which was reorganised into the AIR in 1936.

The AIR, however, had a pathetic and chequered early career. It had to face a lot of administrative problems on account of foreign rule, multiplicity of languages and economic backwardness. As Menon has remarked, "It was only after Independence that broadcasting was organised as a national service. In the last twenty years the growth has been, both in quantity and quality, steady, if not spectacular. The reorientation in outlook, the shift in the emphasis of values, the transformation of an existing set-up into a national service, these take time. And the wheels of Government grind slowly."

In 1947 there were only 14 radio stations out of which 9 were controlled by the AIR, and 5 were managed by the Princely States. But after Indepe .dence, 3 stations came under Pakistan and 6 stations were retained by the AIR. So we had only half a dozen stations and about a quarter of a million radio sets throughout India. As such radio reached only about 10 per cent of the population. In 1976 there were 47 stations and another 24 auxiliary stations making a total of 71 transmitting stations. But there were 146 transmitters and 16 million radio sets besides a large number of unlicensed ones. The News

Service of the AIR is well-developed and broadcasts news in all the major Indian languages and several dialects. In addition to this there are External Service, tribal programmes, music programmes and so on catering to the needs of various audiences. In 1948 the Cuttack AIR station came into being followed by Sambalpur and Jeypur.

Television

In 1924 John Eaird succeeded in transmitting for the first time a visual across a few feet. Marconi of Italy also tried his hand and for a decade or so experimental television continued. On November 2, 1936, the BBC initiated the first regular television service. There were only 300 television sets at that time and even in England it was not a viable proposition. Suddenly on September, 1, 1939, the BBC television closed down and did not reopen till June 7, 1947. During sixties, however, TV service spread like a wildfire, and its utility caught attention of the world.

In 1956, the General Conference of UNESCO held in New Delhi proposed that a pilot project should be implemented in India to study the use of TV as a medium of education, rural uplift and community development. At last in 1956 an agreement was signed between AIR and UNESCO for stating the project as an experiment in order to assess "the value of different types of Educational Television Programmes suitable for group viewing in rural and urban communities in such a way that the results of such an assessment may be useful not only for Indian but also other Asian countries in the use of television for community education.

During 1960-61 a series of social education programmes were telecast for viewing in various parts of Delhi and the nature as well as degree of the impact of these programmes was evaluated by the National

Fundamental Education centre and Indian Adult Education Association, New Delhi. The results of the experiment were found to be quite encouraging and significantly gainful. Another project was initiated in the field of school broadcasting in 1961 by the AIR in collaboration with the Ford Foundation. In all 250 schools in Delhi were covered under this project. The TV programmes were directly related to school curriculum and teachers were specially trained for properly utilising them.

As the number of schools equipped with TV sets increased, benefits of TV were extended to 36,000 students of science and 96,000 students of English. After four years the impact of the TV programmes was studied by Dr Paul Neurath Government grated a licence to the Indian Broadcasting Company a Professor of Sociology at City University of New York. The overall results of the study was also quite satisfactory. On August 15, 1965 regular TV service was stated in Delhi when Smt.

Indira Gandhi was the Minister for Information and Broadcasting. In early 1966, a landmark was made with launching of the Krishi Darshan Programmes for farmers. The AIR was organising this project in collaboroation with the Institute of Agriculture Research, the Delhi Administration and the Atomic Energy Commission. The experiences of this project were enlightening and interesting.

Another epoch-making project was the SITE implemented during the year 1975-76. But the initiative was taken by the UNESCO and nearly a decade back since 1965- the year of international Cooperation. In December, 1965 discussion was made on Space Communication in a meeting of the UNESCO and the experts were asked to advise on this important issue- the use of Space Communication as a medium for the free

flow of information, the spread of education and wider international cultural exchange." An Advisory Panel on Space Communication was set up by UNESCO as decided in the said meeting. An international committee of media experts in a report submitted earlier to the UNESCO after carefully studying the various problems, mentioned, : India as one example, would seem to offer a good choice for the application of a pilot project. The needs of education and development are largely recognised within the country and the present broadcasting facilities are only beginning to play their part.:

It was felt that development of adequate communication facilities by conventional terrestrial means would be comparatively expensive as well as slow. Moreover, India had to tackle a large number of problems like population explosion, food scarcity, mass illiteracy and ignorance. Therefore, the Advisory Panel on Space Communication held in the UNESCO House on March 23,1967 recommended that a pilot study was to be conducted in India. Lastly, the Wildings Groups prepared a favourable feasibility report, communication experts like Wilbur Schram made favourable suggestion and Indian scientists with vision and zeal like Vikram Sarabhai made preliminary arrangements to give the final shape to the project.

The SITE was inaugurated on August 1, 1975 by Smt. Indira Gandhi, the Prime Minister of India at Ahmedabad. The TV programme produced by the AIR, and ISRO were telecast to all the 2,400 selected villages on 21 blocks of 5 states-Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Orissa and through the Sateillte loaned by the National Aeronautics and Space Administration of USA for a period for one year. The Satellite was known as ATS-6 which according to Wernher Von Braun , the distinguished Space scientist

"could turn to be the most important advance since movable type as a means of reaching people separated by vast geographical, economic and cultural barriers. In Orissa 354 center in three revenue districts of Dhenkanal, Phulbani and Sambalpur were selected for the SITE and most of them were located in schools where educational programmes viewed in days time and adult instructional programmes were viewed in the evening hours.

During this one year besides formal regular educational programmes some training courses were organised for TV user teachers and science teachers with the use of TV programmes. The studies conducted by the ISRO Ministry of Education, NCERT, Educational Technology Cells and some universities revealed that the impact of SITE on development and Education was quite inspiring. After the SITE the Government of India decided to provide TV viewing in 40 percent of the villages by setting up low powers terrestrial transmitters in six SITE cluster areas in view of the infrastructure and studio facilities already existing in SITE Continuity programmes.

Besides other five SITE States, in Orissa Sambalpur area was selected for the purpose. The program was inaugurated on April 30,1978 and now 15 kms radius of the Sambalpur town. The scheme is popularly known as Community Viewing Scheme and would be of permanent nature with expansion of area and extension of facilities to more schools from time to time.

Radio and TV Complementary

Radio and television are not contradictory to each other may be competitive. In the advance countries where TV had gone a long way and is immensely popular there also media of communication. Both the media are rather cooperative and complementary to each other. In 1960 Western Europe had about 82 million radio stations but

by 1970 it had doubled to cover 164 million. Within this decade in japan the number of radio sets had been more than four time and in USA 156 million leaped to 21 millions. An interesting fact in this context may be mentioned here. In USA although there are about 215 million people, the number of radio sets is 320 million. It is quite surprising of course! This may be partly explained by the fact that there are about 10 millions sets fitted in private cars, texis, buses lorries as the Americans spend a good deal of their time in automobiles. In the developing countries television has not yet made any impact and radio had mostly monopolised the broadcasting field.

Every medium had its own strengths and weaknesses. Radio is good in one and bad in the other as TV is satisfying in broadcasting one kind of programmes and may be unsatisfying in another. Radio transmission can cover a vast area with natural barriers and one can listen to radio programmes very well while he is engaged in any physical even in intellectual work. The infrastructure required for radio transmission is also not so sophisticated and expensive like that for TV transmission. Television of course has its own unique and original contributions to make in broadcasting particularly in respect to motions, skills, Artistic desterity. On the whole both media at] potential for mass communication and should be utilised as mutually supporting and supplementing agencies. Both should aim at the universal well-being and education, unprejudiced information and entertainment.

4

Strategic Roles for Broadcasting

One should have no illlusions about why educational television or radio systems have sometime been set up. Such decision are rarely taken for any one single reason, but in a number of cases, educational justification have been clearly subordinate to other pressures. Afghanistan is a case in point, if rather an exotic one. Shortly before the first of the left-wing revolution in 1978, the Afghan government, led by President Daoud, had decided to introduce television for the first time. A studio facility was to be built in the capital, Kabul, with a transmitter to cover Kabul and the surrounding areas initially, and an extension planned later to other parts of the country. The new service was to be opened, President himself, in march 1998.

The decision to introduce television to Afghanistan was made after a visit from a Japanese technical team and an offer from the Japanese government to provide a low interest loan for the purchase and installation of the basic production and transmission system in Kabul. The main justification for the introduction of television to Afghanistan, which has one of the lowest per-capital income figures for developing countries, was given in the first paragraph of the Japanese International Co-operation Agency's report, proposing in 1975 a television system to the government of Afghanistan: 'Television broadcasting is the most effective media to elevate the level of education to people'. The transparency of the educational

justification became apparent with subsequent events. The facilities covered by the Japanese loan were in fact very limited; the construction of a studio building, the equipment needed for production within that building, the construction of a transmitter covering Kabul and the surrounding area, and a short training programme for Afghan production staff in Japan. It was quite clear to Western experts that substantial amount of additional equipment would be needed to expand production and transmission beyond the very limited levels covered by the loan agreement. This equipment though would have to be bought at full commercial rates. The government controlled national broadcasting organisation. Radio Kabul, was responsible for the planning and introduction of the television service, assisted by Japanese technical consultants. However, according to Radio Kabul's management, the facilities provided under the Japanese loan agreement were insufficient to allow for the production of any schools programmes or any programmes made specifically for government development agencies.

The facilities would be fully occupied providing news and general programming. Therefore the Ministry of education was instructed to provide a separate educational television service. In order to do this, the ministry of Education had to find additional studio and technical facilities of the production of education programmes, and train its own production staff., since all the training places under the Japanese loan agreement had been allocated to radio Kabul producers for the main service. The Ministry of Education also had to find resources for television receivers in schools, since the Japanese loan agreement covered the provision of only 100 receivers. Most of which were required by Radio Kabul for technical reasons. The Japanese refuse to extend the loan agreement to include the provision of

and educational television production facility or receivers from school use. The ministry of Education therefore tried to raise money from international aid agencies, such as the World Bank, the United Nations Development Programme, or from foreign government agencies, such as USAID, since there was no money earmarked by the Ministry of Finance for the development of an educational television service. There was little enthusiasm though from the various international and foreign aid agencies from such a project because of the high costs and doubts about the likely effectiveness of such service. Educational television would cover only a limited area around Kabul, which already had better educational provision than the rest of the country. The great majority of the target groups to which the aid agencies were giving priority-the very poor, farmers, children out of school live outside the proposed television transmission area.

Nevertheless, the government was still aiming to provide some form of educational television service for the opening day, In March 1978 even if it meant borrowing films fro other countries. As it happened, these and all the other plan of President Daoud and his government came to an abrupt end in the bloody revolution of 1978. The final irony was that when the Russians arrived six months later, they promptly put to use the brand new, fully operational studio complex and transmitter to explain to the people why they were there. Subsequently, they have scrapped the Japanese system and installed their own. The example illustrates that while education and development may be the manifest reasons for establishing a television service, in even the poorest countries in the world commercial and political reasons are more likely to be paramount Daoud was well aware of would enable him to communicate directly with the people

For the Japanese, the loan agreement was clearly a worthwhile commercial proposition, since, for comparatively little cost, hitherto virgin territory would be opened upon for their equipment manufacturers. Education or development purposes in fact are rarely the main reason for introducing a television service, even in developing countries, Katz and Wedell after a detailed study of eleven developing countries, conclude:

> There is no reason to assume hat the introduction of television is automatically equated with development by the leaders of new and developing nations. Typically, it is introduced for variety of other purposes: as an opiate of the people, as a symbol of nationhood, as a projector of the image of the leadership, as part of a national celebration, to transmit a sporting event, as result of an attractive proposition by a foreign broadcasting company or set manufacturer, or to meet the cosmopolitan expectation of big-city dweller demanding to be entertained in the cosmopolitan manner.

However, whatever the original reasons for setting up a television or radio service, it is not difficult to find valid justifications for using it for educational or development purposes, once it is there. There are three broad political objectives in the use of broadcasting in education. The first justifies the use of television and radio by arguing that it can improve the quality foe existing educational provision. The focus in this approach is on the use of television and radio for improvement within he formal education at school or college. This will be the focus of this chapter and the next.

The second political perspective justifies the use of television and radio by arguing that it can equalise or spread more widely educational opportunities- what McAnany and Mayo have called the democratization of educational opportunity. The focus here is on providing

educational opportunities beyond the formal school and college system, through part time off campus education for those outside the normal age range or geographical reach of the basic school and college system.

The third is to some extent outside the scope of this book except that it draws attention to some of the limitations of strictly educational television and radio. This justifies the use of television and radio by arguing that they can be used as a revolutionary force, to bring about radical charges in the social structure and in the mobilisation of the poor and oppressed. The focus here is on wider access to the means of broadcast production and distribution, allowing more extensive community use of media, or the use of media as an organising force for local action. The aim here is to by-pass powerful elites, appealing directly to the people.

School broadcasting

> Ask a hundred people in almost any country what they think is meant by educational broadcasting and ninety of them are likely to reply. Well, it means those programmes made for schools,' This is certainly the popular view of educational radio and television; and it has been the starting are of most educational service.

There has been continuous school broadcasting in several Western European countries for over fifty years. The BBC broadcast the first schools radio programme in 1926, and radio broadcasts to schools began in Sweden shortly afterwards. Even since, the annual output of schools broadcasts in Western European countries has bee substantial. The broadcasting organisations in Britain provide between them a comprehensive range of programmes for schools, offering in any one year programmes of one sort or another for all the age ranges from five to eighteen, and covering most subject areas

found in the curriculum of most British schools. In Britain, the Inner London Education Authority produces its own television programmes for use in schools distributed on videocassettes. In North America, most educational programmes for schools are broadcast, or distributed by cable, usually on a state basis. Programmes are produced by local state educational broadcasting organisations, such as Kentucky Educational Television and the Nebraska Educational Communications Network, by interstate production consortia, such as the Agency for Instructional Television, or by independent local television stations. Consequently in America there is a much greater diversity of educational production than in Britain.

In most developed countries, it has rarely been the intention within the formal education system to use Broadcasting to replace the teacher, or even to reduce staff-pupil ratios; rather, television and radio are seen as an extra resource on which the schools and colleges can draw if they wish. For this reason, I see school of the existing educational service; certainly, in Britain, it is never replacement or substitute for basic educational services. This attitude might be considered to be due to the way school broadcasts are financed in Britain. The production and transmission of programmes in provided without direct cost to be schools of programmes is provided without direct cost to the schools and purchase the teacher manuals. However, even in the USA, where schools boards pay directly for production if they opt to join one of the Agency for Instructional Television's production concorita, the programmes are still intended as support to existing basic education services, an additional resource for improving the quality of instruction. When discussing ways in which television and radio have been used to improve the quality of instruction, it will be helpful to distinguish between two

rather different ways of generating programmes material. One is to make programmes which are directly aimed at the pupils the second is to aim programmes at the teachers themselves.

Programmes aimed directly at learners

Programmes aimed directly at pupils a students within he formal educational system can be considered along a continuum from 'enrichment'., through' learning resource', 'meeting special needs', to 'direct teaching and curriculum reform'.

Enrichment

This is perhaps the most common term used to describe the use of schools broadcasting. However, 'enrichment' is rarely clearly defined. I understand enrichment to mean an addition to or a reinforcement of something that the teacher is already trying to do, but which, in itself, is not essential or crucial tot he teaching task. The aim is to use television or radio to reinforce the content, skills or attitudes that teachers are already committed to important to their pupils or students. This might be done by increasing or relevant, by providing a wider or more realistic context, and so on. The implication behind such a use is that a topic or subject could still be taught or learned without the programme being seen or heard, but that such a programme might increase the chance of learning being more effective, thorough its motivational role.

Learning objectives in such programmes tend to the deliberately vague or diffuse because of the widely varying classroom contexts in which programmes are likely to be used. In countries like Britain, where there is no national curriculum, broadcasters face special difficulties. Below the age at which children begin to follow syllabuses which are publicly examined, each

school is more or less free to determine its own curriculum. In many primary schools, what is taught, and even more so how it is taught is very much the choice of individual teachers. Even for the fourteen-to eighteen-year-old age group preparing for public examinations there is no single national syllabus in any subject, since there are several different examination boards and schools are free to choose which they shall follow. Consequently, it is very difficult for educational broadcasters to be sure that their programmes will fit in with the teaching plans of individual classes. It is for this reason that generally, broadcast producers deliberately avoid teaching 'directly' or 'didactically'. It is certainly true that in the past many programmes went out on a wing and a prayer-with the how that somehow they would fit in with, or provide some extra dimension to, the children's learning. Such a use of broadcasting leaves a great deal to chance.

Today, though, British broadcasting organisations would consider their programme policies to be more sophisticated, and it probably does them a disservice to describe the programmes as merely enrichment. Through their advisory councils, which include practicing teachers, and through their advisory councils, which include practising teachers, and through their education officers, who have regular contacts with the schools, British broadcasting organisations are able to get a pretty good idea of the needs of schools and the shift of opinions and trends. As a consequence, most British schools broadcasts are seen by the broadcasters themselves as being much more specific in their educational purpose than just providing enrichment material-although no doubt many programmes are still used in that way by teachers in the schools.

Even in developing countries, which generally have centralise, nationally determined curricula, television or

radio are still most frequently used as a support to the standard curriculum. The programmes supplement and reinforce the existing curriculum, which is normally determined without any consideration of how television or radio might be integrated with the curriculum. The programmes supplement and reinforce the existing curriculum, which is normally determine without any consideration of how television or radio might be integrated with the curriculum. Programme designers therefore have to take the curriculum as given, and design their programmes around that curriculum, although they are often guided or advised by the Ministry's curriculum designers. Thus enrichment is till the most common use for schools radio and television in developing countries also, although the World Bank and United States Agency for International Development (USAID) are increasing pressure on developing countries to use radio in particular for direct teaching. Among countries where radio is used to enrich the national curriculum are Thailand and the Philippines, and television is used in a similar way in Singapore, Mauritius, India and Hong Kong.

Programmes styles for enrichment programmes in developed countries are very often similar to the styles of general broadcasts in the documentary and current affairs field. Programmes tend to be loosely structured, sometimes with a magazine format and tend to make use of many of the characteristics of general broadcasting that motivate and hold attention.

Learning resources

One of the main developments in recent years has been to consider television and radio programmes as a learning resources, in that they offer teachers, pupils and students teaching material which would not be easily accessible to them in other ways. A former BBC producer,

Richard Hooper, described such a use of television and radio as providing learners with primary resource material. He has argued that until recently teachers have been a substitute source of knowledge and information, storing, trasforming and communicating knowledge to those who have not so far had the opportunity to experience such knowledge to those who have not so far had the opportunity to experience such knowledge for themselves. Television and radio provide learners with access to knowledge and information in a more direct and concrete form. Examples of primary resource material are newsreel and historical film, film from foreign countries or different parts of one's own country, interviews with national leaders or other people in positions of authority interviews with participants in significant events, and so on. Television and radio can also provide learning resources through the construction of physical models, professionally designed graphics and animation, professional performance of dance, drama and music, and foreign languages spoken in context by native speakers. None of this material would otherwise be available in the normal school or college context.

It can be seen that the actual material in programmes used as learning resources is very similar to material found in programmes used for enrichment purposes. The crucial difference is in the way that teachers ad curriculum designers use such material, although there are implications also for the way programmes are designed and structured.

The important difference is that with using television or radio as a learning resource, material from the programmes is closely integrated by the teacher or curriculum designer with other teaching material. Only those parts of the television or radio programmes that are relevant to the teaching task, and which provide different experiences from other materials available, need be used,

Ideally, this would mean that when a syllabus is being planned, the likely availability of suitable television or radio material is taken into account before the teaching programme for the term or year is finalised. Such advanced planning however requires access to television and radio material before teaching begins. With the advent of relatively low-cost video and audio cassette recording and reply equipment, this is now much more feasible. It is also feasible in developing countries where there is centralised curriculum planing. Television and radio could be closely integrated with the curriculum so that television, radio, textbooks, direct teaching by the teacher, and group and socialising activities are all integrated. However this could only be done when the curriculum is revised or reformed and, to date, centralised curricula in developing countries have not been designed with integrated television or radio used as a learning resource, as distinct from use for direct teaching.

Nor, of course, is it common for such advanced planning and integration of television and radio to take place in schools in developed countries. However, there are teachers now who do plan the use of television or radio as a learning resource a few days or a week ahead, either using a cassette recording which is already available, or relying on a forthcoming broadcast whose likely contents are well known, from use in previous years. The distinction here between using television or radio as a learning resource or as enrichment is admittedly rather fine. I believe though that there is an important difference between a teacher planning a specific unit of teaching, within which material from a television programme is deliberately chosen because it complements other resource material that the teacher has chose, and using a television programme which it is hoped will relate to other teaching material, but which

neither the teacher, nor probably the children, are sure will be relevant. There are also implications for the design of programmes, when the purpose from the outset is for the material to be used as primary resource material. A programme made for enrichment tends to have a standard length and a unity which allows the programme to stand alone as a meaningful, comprehensive entity. It tends to have an easily recognisable beginning, middle and end. Form a broadcasting organisations point of view, there is much to be said for the enrichment format, in that it can have a dual function within schools for use either as enrichment, or, if used selectively, as resource material, and at the same time be comprehensible to the substantial number of adults who watch or listen to schools broadcasts out of interest.

Programmes made of use as learning resources, particularly if they are made at the outset for cassette distribution and use, should, however, be structured differently. Since teachers will be selecting segments of material, the segments may vary in length and may not even be linked. If made for distribution on cassette, the length of the cassette will be determined by the number and length of the individual segments. Activities may be built in at the end of each segment or edited in such a way that they can be omitted if the teacher chooses. There may be cues in the middle of segments where teachers can stop the programme to ask questions or to allow children to carry out some work before returning to the tape. Commentary is likely to be even less directive or Instructional than on enrichment programmes; in some cases there will be no commentary.

The aim behind such material is for it to be integrated by teachers into a wider learning experience, where the learning or teaching of facts or concepts is dealt with not just in the programme material nor

primarily by the teachers telling the students or pupils, but as a results of the full experience provided by a variety of learning materials and experiences. However, it must be emphasized that the use of television or radio material in such a deliberately planned, integrated manner is still extremely rare in schools and colleges.

Meeting special needs

Even in the best education service, temporary deficiencies can occur in a particular school due to the loss through sickness, transfer or retirement of specialist staff. Even in developed countries like Britain and the U.S.A. there can be chronic or permanent shortages of specialist stand, particular for science or mathematics teaching. Schools television and radio programmes, by using the skills of experienced and able specialist teachers, can make those skills available to all the schools in the country. Such programmes can be particularly useful to otherwise trained staff who nevertheless be covering areas in which they feel they lack sufficient academic qualifications. Such teachers will be well able to provide suitable follow-up work, to answer questions and to prepare themselves adequately by means of the teachers handbook which accompany the series, but the programmes themselves provide valuable guidance and confidence in following a certain approach. Similarly, as well as specialist staff, schools may lack specialist equipment, such as musical instruments. Television and radio can be useful substitute in such circumstances.

Schools television and radio programmes thus provide extra flexibility in schools, allowing sometimes scarce learning resources to be made available to all schools. Such a role is particularly useful in areas with low population densities, where it would be uneconomical to provide a school with all the facilities found in large urban schools, in areas such as run-down

inner city locations in developed countries, or remote rural areas in developing countries, where it can be particularly difficult to recruit scarce specialist staff.

When television and radio programmes are used to meet such deficiencies, a different style of programming may be required from that most appropriate for use as enrichment or learning resources. Since the teachers whom the programmes are aiming to help are not well qualified in the subject area, the programmes will be more useful if they are more didactic and directive, if teachers notes that provide reinforcement and further explanation of the subject material are also available, and if clear follow -up activities are firmly suggested.

Direct teaching and curriculum reform

Perhaps the most spectacular use of the media of instruction in developing countries has been to try to accomplish a swift reform of a national or territorial system of education. Time is of the essence in this sort of project changes that would ordinarily take fifty to one hundred years. At the usual measured pace of education, are projected to be achieved in ten or twenty years.

Television and radio have been used in several developing countries for direct teaching. Both the core content and the style or method of instruction are embodied in the programmes themselves. When television or radio are used in this way within the formal school system there is still a need for adult supervision-although in some projects unqualified monitors have been used instead of trained teachers-but the role of the teacher or monitor is supplement and support the television or radio teaching. The adult then becomes a classroom supervision, organisor and manager but not someone who determines either the content or the method by which the content will be taught. Thus the programmes are the curriculum.

Direct teaching through television and radio has been used in the formal school systems of developing countries in three related but slightly different ways:

(1) to expand the range of the school system, enabling pupils who would otherwise have had no formal schooling beyond a certain age to continue with their schooling. In such a circumstances the government aims to provide education for all children in the relevant age groups in principle to provide the necessary facilities for all such pupils. In this situation, lesson based on the standard national curriculum are distributed by television or radio to areas where there is no adequate conventional school provision. Pupils normally follow the programmes in classes, using basic accommodation. There is usually a supervisor or monitor in charge of the group. Examples of such projects are the Radioprimaria and Telesecundaria projects in Mexico, and ETV Maranhao in Brazil. In some cases, as with the Radio Schools of Australia, pupils study at home with one of their parents as the supervisor. In this case, there is the possibility of to- way communication, as the pupils can talk back on their own radio to the distant teacher.

(2) to improve the quality of instruction, where there are schools, but due to the low level of education of the teachers or their lack of training, and the lack of other suitable resources, such as books, the quality of instruction is considered to be poor. Once again, programmes based on an already existing national curriculum are transmitter, but in this case to other wise conventional schools. An example of this approach is the Radio Mathematics project in Nicaragua. The methods used in his project are being applied also to mathematics teaching in the Philippines and Thailand;

(3) to reform the national school curriculum, in such a
     way that both the subject matter and the method of
     teaching are radically changed, with television
     playing the central, direct teaching role. Television is
     in this situation both the medium and the catalyst for
     reform. To data, and perhaps surprisingly, radio has
     not yet been used in this way, and when television
     and curriculum reform have been introduced
     together, it has always been in the form of direct
     teaching. Television has been used for curriculum
     reform in American Samoa, El Salvador, the Ivory
     Coast and Niger.

Curriculum reform of course is possible without the
introduction of television; television could also be
systematically introduced as part of curriculum reform
without it necessarily playing a direct teaching role. For
instance, only a part of the curriculum need be built
around television, or television could be one of several
resources available to teachers within a new curriculum.
However, there are strong reasons why the introduction
of curriculum reform combined with television has
resulted in the use of television for direct teaching. A
successful reform of a national curriculum thorough
conventional methods requires teachers who are already
in service, and used to the old curriculum, to be retrained
in the new subject material and new methods of teaching.
Conventional retaining methods would require special
courses, involve travel costs and personal inconvenience
to the teachers and may require the withdrawal of
teachers from their normal teaching activities. In many
developing countries it is the initial training of teachers
which receives priority. In such countries planners may
fear that the retraining of teachers required by a national
curriculum reform through conventional methods would
take too long, would be impractical on a large scale and
would be too expensive. What better then than to use

television to by-pass the retraining problem completed by using television to carry the main burden of teaching the new curriculum? Also, combining curriculum reform with the opening of a new television service provides a clear target and stimulus for curriculum reform. The day on which the television service opens provides a deadline for the introduction of a new curriculum, a deadline which it would embarrassing politically to miss.

It is necessary to have worked on such projects, or at least to have read detailed accounts of them, to comprehend fully their ambition and the difficulties they have had to overcome. The Ivory Coast system required not only the construction of a TV production centre, the training of the staff to run it and the production of 500 hours programming in one year alone, but also the installation and maintenance of battery-operated television sets in over 5,000 classes, many in isolated, humid villages in the bush. As well as a reform of the curriculum, the Ivory Coast project also involved training teachers in the use of television-based education ad required the distribution of over 200 tons of support print materials schools system in American Samoa, in one year the ETV unit was producing 6,000 programmes. In Nicaragua, the programme designers found it necessary to teach mathematics directly by radio to children in rural and poor urban primary schools without printed support materials for the pupils, as these would have substantially increased project costs. They also managed to continue the project successfully through the major part of a bloody revolution. ETV Maranhao provides secondary education by way of television classes which run semi-autonomously through a system of group activities to pupils from very poor homes in a remote part of the Amazon basin in Brazil. This projects is particularly unusual in that it is virtually independent of foreign financial or technical assistance.

In short, the use of television and radio for direct teaching and curriculum reform in developing countries has required-and obtained-a great deal of commitment, hard work, idealism and ingenuity. It has affected large numbers of pupils, teachers and educational planners, and required assistance from foreign consultants, a good deal of foreign financial aid and substantial financial resources from developing counties themselves.

To understand why television and radio have been used in these ways in developing countries-but hardly ever in developed countries-it is necessary to understand the educational needs which led politicians and planners to adopt such radical measures. In Nigar, before the introduction of the educational television project, only 7 per cent of school-age children actually attended school. In the Ivory Coast, 25 per cent of children in target age range attended school in the first grade, but by the fourth grade this figure had dropped to 14 per cent. This was in 1967-68, just before the inception of the television-based reform. At that time, the government's goal was to provide universal primary education through the first six grades by 1985. In El Salvador government, however, considered that it was essential to increase substantially enrolments at this level if its plans for economic growth were to succeed. At the same time, the national curriculum was recognised by the government to be based on values ad concepts imported from Europe in the nineteenth century or individuals. In American Samoa teachers prior to the introduction of the television system were not generally educated beyond 9th grade and they had little command of English, although this was supposed to be the language of instruction in the schools.

There are certain common characteristics of those countries where direct teaching by television and radio have been used. They are typified by low enrolments in the formal school system; high drop-out by those who do

enrol; poorly qualified teachers; lack of adequate
buildings, books and other basic educational resources; a
rapidly increasing population; an uneven distribution of
educational resources, with education being more readily
available in urban areas and being taken up more by
children from more prosperous families; a need for more
skilled and semi-skilled workers; and a low national
gross income, resulting in severe shortage of money for
educational purposes, Politicians and planners in these
countries looked to television and radio as a means to
break through these major obstacles to educational
economic progress.

There are also certain common characteristics about the
projects themselves where direct teaching has been used.

(1)   The decision to use television or radio for national
      curriculum reform was heavily influenced by the
      availability of funding or technical assistance form
      abroad;

(2)   all the countries had a centralise, national
      curriculum;

(3)   all the counties had a low educational base before
      the introduction of television or radio for direct
      teaching;

(4)   most of the countries were relatively small and
      centralised, so schools could be easily reached by a
      central TV signal.

The use of the television or radio for direct teaching in
schools has been restricted to developing countries; there
are hardly any examples of its use this way in developed
countries.

Freedom of access to broadcasting

The services broadcasting performs for individuals or
groups depends upon their own interests or purposes. If
you consider radio and television from the standpoint of

a listener or viewer, broadcasting may provide you with (a) entertainment, (b) information and education, and (c) advertising. If you approach broadcasting as an entrepreneur or businessman, it may serve two functions, (a) to bring a return on an investment, to earn a profit, and (b) to render a service to the public. Finally, if you approach broadcasting from the standpoint of the role it plays in the political order, you are apt to consider its primary function, in terms of its relationship to the dominating philosophy of government, i.e., as authoritarian, libertarian, communist, or socially responsible.

Certainly, as a responsible citizen, you cannot ignore the values of broadcasting. It plays a larger part in the lives of Americans than the other mass media. About 97 per cent of American homes are equipped with radio receiving sets, and a majority of homes have more than one. Furthermore, about two-thirds of American automobiles are radio-equipped. As for television, a similar situation is fast approaching. In so-called "saturated" areas in which television service has been provided for four or more years, the percentage of homes with television receiving sets is already in the 80's. And with lifting of the "freeze" on the construction of new television stations, we may expect similar coverage in the remainder of the country in the next five years or so.

As a result of ready access to broadcasting, Americans spend more time exposed to radio and television than they spend in any other voluntary activity. What this does to them and what they can do about it will be considered in later chapters. Every responsible citizen should understand the functions of broadcasting and appreciate its influence in present-day society. Anyone with educational responsibilities should be especially alert to the potentialities of broadcasting for the enrichment of learning experiences.

Indeed, broadcasting plays an important role in most nations and in an important instrument in international policy. In other which prevails in the United States. In Russia and other Communist controlled countries, it is a vital arm of the state. In the underdeveloped countries of the Middle East, Asia, and Latin America, it is beginning to be used deliberately to inform and instruct the masses of people in the rudiments of health, sanitation, agriculture, home skills, and citizenship.

As an agency for crossing international frontiers, whether this be considered "psychological warfare" or a "campaign of truth," radio has no equal. The United States, with its official "Voice of America" and its private "Radio Free Europe" and "Radio Free Asia," wages only a small part of the war of words. The Soviet Union spends several times as much money and effort on its foreign broadcast propaganda as does the United States. The British, too, have pioneered in international short-wave and have continued to broadcast on a large scale during the cold war. Even the small nations recognize the importance of voicing their particular views and versions of world events, so that the ether is crowded with competing propagandas.

How broadcasting serves the listener-viewer

The most common motive for turning on the receiving set is to be entertained. Life in the United States is tense and fast-moving, and relaxation is essential. Because of the accessibility of radio and television, they have become a primary means of release the relief. Moreover, when a set is owned, broadcasting is the cheapest form of diversion. Reading, sports attendance, movie-and neighbors require an immediate outlay of cash. But the receiving set has only to be turned on, and a wide selection of entertainment is at once available.

Most Americans seek entertainment at times because they are lonely. The United States is becoming increasingly a land of urban people, and one notable characteristic of city life is loneliness. Entertainment provided by radio and television provides a sense of companionship and an escape form solitude. Studies of social maladjusted boys and girls indicate that these youth devote large amounts of time to listening and viewing in a conscious use of these media to "forget my troubles" and to find companionship in the broadcasting activity.

American broadcasting provides a wider range of entertainment than any of the other mass media. It is the common man's theater, his music hall, his vaudeville house, his circus tent, and his medicine show. He can view football, baseball, and basketball, as well as wrestling and boxing. He can travel around the world without moving from his easy chair. And all of this with a minimum of effort on his own part. While he cannot literally have anything he wants when he wants it, he can find a surprising range of offerings available to him because of the competition among four national networks in both radio and television, supplemented by offerings from near-by independent stations.

But this is by no means the whole story. The informative or educational role of broadcasting is both effective and important even though the listener or viewer is interested primarily in entertainment. He depends upon radio or television to keep him up to date on the news. He listens to or views the national political conventions, the presidential inaugurations, the United Nations in sessions, the proceedings of investigational committees, and the workings of his local traffic court. He garners his political opinions from his favorite commentators and listens to a sampling of campaign oratory. He depends upon broadcasting for weather

forecasts and market reports. The farmer receives guidance on when to plant and spray and how to overcome a variety of crop pests. The housewife gets tips on everything from home decoration and child care to the serving of leftovers. Important audiences follow forums and debates on political and social issues, take "tele-courses" in a variety of academic fields, listen to talks on myriad subjects, learn the workings of community organizations and institutions, and pick up new angles and tips on the pursuit of hobbies and leisure-time activities.

A third function performed by broadcasting is to provide the consumer with information about goods and services and with incentives to desire them. Radio and television have become prime means of selling the stream of products pouring forth from American farms and factories. It is doubtful if the listener-viewer often turns consciously to his receiving set for advertising. Indeed, he is frequently annoyed by its length, its blatancy, and its continual intrusion. Nevertheless, it profoundly affects him. He frequently buys the products that he sees and hears about, and his desires for new goods and services are whetted by the appeals that are made to him.

Advertising has a unique relationship to the medium of broadcasting. In the United States it is the principal means of financial support for commercial radio and television stations, and well over 95 per cent of American stations are commercial. Moreover, this has a profound influence upon the nature of programs to be found on radio and television stations as will be shown in chapter ix. Sponsors and the advertising agencies are not only responsible for the sales massages but usually determine the content of the sponsored programs themselves. Seldom do stations or networks try to enlist they confine themselves to selling time and facilities for program reduced, typically, to making a selection meets

his requirements. Since sponsored network programs are made available on a larger number of stations, the programs with the largest following and the largest influence are those furnished by sponsors rather than by the broadcasters themselves. In no other medium does the advertiser exert such a direct influence.

Function of broadcasting for the entrepreneur

From the standpoint of the owner and operator of a broadcast station in the United States, except in the case of noncommercial stations, broadcasting is a business. A radio or television station represents a sizeable investment and is expected to bring a fair return. If the station is owned by a corporation, the management has a financial responsibility to the stockholders to see that the total operation is a profitable one. In this respect, operation of a broadcast station is no different than publishing a newspaper or managing a motion-picture theater.

But whether he likes it or not, the manager of a radio or television station must perform another function. He is licensed to operate on a frequency or channel belonging to the United States, and the condition of his license is that he must operate in the "public convenience, interest, or necessity." Unlike any other medium, the number of broadcast stations is limited by the nature of the medium, and the licensee is a privileged person who has been selected on the basis of evidence that he will serve the public better than the other applicants. He pays nothing for his license and is entitled to exploit it commercially as he sees fit so long as he serves the public adequately thereby.

Thus, the broadcaster has to serve two masters-profit ad public service. Much of the time he can serve the two concurrently, but sometimes he must make a choice of one or the other. And the choices he makes affect the

nature of the programs offered to the public. If he has a high sense of public responsibility, the station may become not only a source of entertainment but also an important agency of the community, reflecting its problems and resources and providing a means of public enlightenment. If, on the contrary, he is motivated more largely by the desire for quick and easy profits, the station may become only a purveyor of mass entertainment, directed always to the lowest common denominator of taste.

The Federal Communications Commission, the independent agency set up by Congress to issue licenses and regulate broadcasting, his a primary responsibility for seeing that broadcasters perform in the public interest. But since the Commission's staff cannot keep track of more than three thousand radio and television stations, in addition to many other primary responsibilities, the existing machinery has been severely taxes. As a result, the Commission's influence has largely been exerted through a body of rules and interpretations which have developed through the years as guides to broadcasting practice.

This brings us to the role broadcasting plays in American democracy. And, because broadcasting is a product of the twentieth century, it had to find itself within a society which has already developed concepts of "freedom from government interference," "freedom of the press", and other manifestations of libertarian theory which did not always fit the new medium as it grew in size and complexity. To appreciate broadcasting's present role in our democracy, it is important to view its function as an evolving one, growing out of a body of trial and error, influenced by the currents and eddies of changing opinion, and still far from being completely defined. Furthermore, the citizen, alert to the problems involved, can, in concert with other active citizens, be influential in

shaping this role. For broadcasting, by its very nature, requires orderly regulation, and the nature of this regulation is determined by the congress and the creature of the Congress, the Federal Communications Commission. Both are subject to the mandate of the people either directly or through public opinion.

Radio, as initially developed by physicists and engineer, was conceived as a means of point-to-point communication, not as "broadcasting." Its uses previous to 1920 were for ship-to-shore contact, for military communication in World War I, and as a means of conveying messages to specific receivers. What little regulation the law provided was administered by the Secretary of Commerce who was empowered to issue licenses to all applicants who qualified. This served mainly to keep track of the wave-length and power of each station and to assure their operation only by American citizens as a protection of national security against foreign intrigue. Few foresaw the development of radio as a medium of mass communication.

Early "broadcasts" were more or less accidental. A lonely engineer played phonograph records to a friend at another station and was overheard by amateur eavesdroppers who had constructed their own receivers. Similar incidents occurred as the interest of the people in this amazing new invention stimulated the buying of radio parts and the building of simple crystal sets. Soon the radio manufacturers caught on to the new development and began sending out broadcasts of records, news read from the newspaper, and similar impromptu programs, as a means for stimulating the sale of parts and, later, entire receiving sets. And so, almost spontaneously, a mass medium was born.

As the number of receivers increased, the number of transmitting stations also increased. Business of all kinds

from department stores to insurance companies acquired broadcasting licenses as did churches, labour unions, farm organizations, and schools and colleges. While the sale of time had not yet become a means of support, radio was recognized as a medium of great influence which could be utilized advantageously by its owner. Public opinion on this matter in the early 1920's is indicated by the following statement:

The emphasis throughout this early period was on the use of radio by commercial companies solely to create public good will. This policy was emphatically approved by the then Secretary of Commerce, Herbert Hoover, who said in 1922, "It is inconceivable that we should allow so great possibility for service, for news, for entertainment, for education, and for vital commercial purposes to be drowned in advertising charter. The First Annual Radio Conference held that year recommended "that direct advertising in radio broadcast service be absolutely prohibited and that indirect advertising be limited to the announcements of the call letters of the station and of the name of the concern responsible for the matter broadcasted.

Under the prevailing interpretation of libertarian theory, a medium of mass communication-in order to participate in a search for truth-must be kept free from government control. Likewise as broadcasting began to develop into a profitable business with the support of advertising, it seemed proper, too, to protect it from government interference. Radio as a mass medium seemed destined to follow the pattern of the press" private initiative and competition, unregulated by government. Robinson has noted the joint efforts of government and the radio industry to achieve this objective:

The Secretary of Commerce and Labor, under the

broad power granted to him, attempted to keep abreast of the rapid development which took place in the art of radio broadcasting. He held radio conferences; he assigned frequencies to stations; he refused to grant licenses to those whom he did not consider qualified; and he specified the time during which an individual broadcasting station could operate. It was however, an era characterized by self-regulation.

The leading executives and engineers attended the annual conference in Washington, made suggestion for the rapidly expanding business, which in turn were usually adopted by the Secretary in the form of regulations. This regulatory period prior to the Radio Act of 1927 was marked by a rapprochement between the government and the radio industry. To a large extend the Federal authorities maintained a hands-off attitude and the principle of laissez faire predominated.

But this period of self regulation for broadcasters became an increasing headache for broadcasters and listeners alike. The practice of laissez faire, which had operated so well with the press, did not take into account the peculiar nature of the broadcast medium. The spectrum upon which radio operated was a limited one, and, as the number of stations increased, three became fewer desirable frequencies and increasing problems of interference.

Stations, which in the early 1920's were of low power, began to increase their power so as to overcome interference from rival stations, only to have their competitors do the same. Finally, to make the situation even more difficult, the regulation that did two Federal court decisions and an opinion by the Attorney General in 1926, which held that the Secretary could not refuse licenses nor specify frequencies or times of operation. The result was a scramble for frequencies and much confusion.

Freedom from government regulation in broadcasting had thus developed a situation from which no one gained anything. It became perfectly clear to broadcasters and listeners alike that government regulation was imperative if the medium was to function with any degree of effectiveness. The libertarian theory, interpreted as freedom from government interference, had proved itself unworkable when applied to broadcasting. It needed to be reinterpreted of it was to be applied to radio.

The Radio Act of 1927 established the basic pattern of regulation under the Interstate Commerce Clause of the constitution. When this was later challenged, Judge Wilkerson ruled as follows:

> It does not seem to be open to question that radio transmission and reception among the stations are interstate. To be sure, it is a new species of commerce. Nothing visible and tangible is transported. There is not even a wire over which "ideas, wishes, orders, and intelligence" are carried. A device in one state produces energy which reaches every part, however small, of the space affected by its power. Other devices in that space response to the energy thus transmitted. The joint action of the transmitter owned by one person and the receiver owned by another is essential to the result. But that result is the transmission of intelligence, ideas, and entertainment. It is intercourse, and that intercourse is commerce.

The basic problem before Congress was the kind of broadcasting system that should be created. Should it be government owned, a pattern being adopted in some foreign nations? Should it be completely a private system with the government confined to policing the wavelengths? Or should it be a system in which private stations become trustees of the public domain, with

responsibilities as well as privileges? These were the basic questions faced by the Sixty-seventh Congress.

The Radio Act of 1927 and the subsequent Communications Act of 1934 were strongly influenced by existing libertarian theory. Although complete laissez faire had been proven unworkable, radio was regarded as a new medium for conveying information and points of view to be tested in "the market place of ideas." Hence, it was not to be government owned and operated. In addition, the private operators were to be free from government censorship. Sec. 326 of the Communications Act not only makes this clear but at the same time recognizes the minimum limitations upon freedom in terms of customary morality:

> Nothing in this Act shall be understood or construed to give the Commission the power of censorship over the radio communications or signals transmitted by any radio station, and no regulation or condition shall be promulgated or fixed by the Commission which shall interfere with the right of free speech by means of radio communication. No person, within the jurisdiction of the United States shall utter any obscene, indecent, or profane language by means of radio communication.

Thus far radio was to follow in the pattern of the press-private operation, no government censorship, no limitation by a government agency of the right of free speech. But more basic questions remained. Who should own the air, the medium over which the broadcasting takes place? If the ownership lies in the government, then what responsibilities should be laid upon those entrusted with the privilege of using their public domain? How could the concept of the market place of ideas be maintained when the number of possible stations is limited by physical properties inherent in the nature of the medium?

Both the Radio Act and the later Communications Act
state unequivocally that all broadcasting channels belong
to the government. Sec. 301 of the latter Act states:

> It is the purpose of this Act, among other things, to
> maintain the control of the United States over all the
> channels of interstate and foreign radio transmission;
> and to provide for the use of such channels, but not
> the ownership thereof, by persons for limited periods
> of time, under licenses granted by Federal authority,
> and no such license shall be construed to create any
> right, beyond the terms, conditions, and periods of
> the license.

From the two basic premises that the number of stations
is limited and that a license is a privilege to use a
channel belonging to the United States, Congress went on
to state the general principle that a station is licensed to
serve "the public convenience, interest, or necessity."
And the debate leading to the enactment of the law
indicates clearly that this public takes precedence over
any private interests. For example, Congressman White
stated:

> We have reached the definite conclusion that the
> right of all our people to enjoy this means of
> communication can be preserved only by the
> repudiation of the idea underlying the 1912 law that
> anyone who will, may transmit an by the assertion in
> its stead of the doctrine that the right of the public to
> be served is superior to the right of any individual to
> use the ether the recent radio conference met this
> issue squarely. It recognized that in the present state
> of scientific development there must be a limitation
> upon the number of broadcasting stations, and it
> recommended that licenses should be issued only to
> those stations whose operation would render a
> benefit to the public are necessary in the public
> interest, or would contribute to the development of
> the art This principle was approved by every

> witness before you committee. We have written it
> into the bill. If enacted into law, the broadcasting
> privilege will not be a right of selfishness. It will rest
> upon an assurance of public interest to the served.

While Congress placed upon each station licensee the responsibility for operation in the public convenience, interest, or necessity, it defined the implications of this order for the handling of broadcasts by candidates for public office. The lawmakers recognized that radio was becoming a powerful medium for affecting public opinion and that it might well be influential in determining the results of electrons. They provided, therefore, in the now-famous Sec. 315, for equal opportunity in the use of a broadcast station is not require to make its facilities available to any candidate, but if it does offer opportunity to any candidate, it must afford equal opportunity to all other candidates for the same office. To further safeguard the freedom of speech of candidates, they added that "such licensee shall have no power of censorship over the material broadcast under the provisions of the section.

So much for the basic law governing broadcasting. Stations are granted licenses to serve the public interest by broadcasting on channels belonging to the United States. This public interest overrides private and personal interests. The government regulatory body is precluded from censorship, and all candidate of public office must be treated equally.

But the actual establishment in practice of the modified libertarian theory has been a gradual development through the years. Through rule-making procedures and through the adjudication of disputes, the Federal Communications Commission has built up a body of rules and principles that govern all broadcast stations. As an independent regulatory body, it legislates

within the limitations imposed upon it by Congress and the Constitution. It also acts as a judicial body in choosing among competing applicants for licenses or in deciding disputes involving alleged violations of the law or regulations. It also as an administrative body and must, on its own initiative, seek out the facts and hail the parties before it. Its actions are subject to review by the courts.

Running through this body of rules and principles will be found a continuous concern with freedom of expression. As a former chairman of the commission, Wayne Coy, stated:

> This goal of the widest possible freedom of speech on the air, including the principle of the utmost fairness, is based on the mandate of Congress as expressed in the communications Act that licenses must operates in the public interest.

This concern with freedom of the air stems, of course, from the First Amendment to the Constitution of the United States and the eighteenth-century philosophy out of which it grew. But broadcasting is a recent development and was certainly not envisioned by the founding fathers. Only by interpretation can the First Amendment be applied to broadcasting. So far as speech and the press are concerned, this amendment reads: "Congress shall make no law abridging the freedom of speech, or of the press..."

Here the founding fathers were clearly trying to safeguard the individual's right to say what he pleased, but it would be naive, indeed, after the experience of the 1920's to interpret this to mean that Congress, or its creature, the commission, cannot prevent anyone from owning a broadcast station. As the Supreme court put it, when the National Broadcasting Company challenged the authority of the Commission to issue the network regulations:

> We come, finally, to an appeal to the First
> Amendment. The Regulations, even if valid in all
> other respects, must fail because they abridge, say
> the appellants, their right of free speech. If that be so,
> it would follow that every person whose application
> for a license to operate a station is denied by the
> commission is thereby denied his constitutional right
> of free speech. Freedom of utterance is abridged to
> many who wish to use the limited facilities of radio.
> Unlike other modes of expressions, radio inherently
> is not available to all. That is its unique
> characteristic, and that is why, unlike other modes of
> expression it is subject to governmental regulation.

Neither can freedom of speech be construed to mean that
every one has the right to speak over radio or television.
There is not enough time on all the stations to give all of
the nation's millions their chance to be heard. It is simply
impossible to apply the freedom-of-speech principle
literally to the field of broadcasting.

But the act of broadcasting has been held to be the
act of publication. Perhaps, then, we should interpret this
amendment in terms of freedom of the press. Indeed this
point of view has been put forward vigorously by a
former president of the National Association of Radio
and Television Broadcasters who argued that "radio
should be as free as the press." Here, again, the essential
distinction between publishing and broadcasting makes
the parallel inoperative.

First of all, the number of possible stations is limited
while the number of publishers is not. While economics
may limit the number of newspapers, it is still possible
for anyone who wants to publish his views to issue a
handbill or tract to spread his views as best he can. But
there is not parallel opportunity in broadcasting. There is
a limited number of broadcasters and each has the
responsibility to determine who shall and who shall not
be heard.

In the second place, broadcasting is a privilege. It involves using channels belonging to the United States and is extended only to those who pledge themselves to operate in the public convenience, interest, or necessity. No such requirement is binding upon publishers. Therefore, while publishers can print what they like and say what they please through their pages, broadcasters have their personal freedom of expression limited at the point at which this violates the public interests.

How, then, can the First Amendment be interpreted to apply to broadcasting?

Here the basic libertarian theory has become the guide. Democracy is an effective system because the judgements of the many are superior to the decisions of the few. But the functioning of democracy is dependent upon an enlightened citizenry. Such enlightenment takes place only when there is a free flow of ideas and opinion unimpeded by interference either by government or vested interest. Furthermore, the nation's security is assured only when the citizen has access to all conflicting points of view, for, in the market place of ideas, the good will ultimately be chosen.

It is the principle of "unimpeded access" that has been applied to broadcasting. Freedom of speech has become the right of the listener or viewer to have access to all significant ideas and opinions. Broadcasters are to ensure this access through the application of fairness. Only thus will the public interest be served.

Let us examine some of the steps that have been taken in developing this principle of fairness.

In one of the early cases of refusal by the Commission to renew a broadcast license, the precedent was established that station could not be used for personal attack upon religious, civic, and governmental

groups. The station was licensed to the Trinity Methodist Church, South in Los Angeles, but was actually owned by its minister, the Reverend Robert Shulter. Complaints had been registered with the commission, at the time of hearing on the renewal of license, to the effect that Mr. Shuler had on numerous occasions attacked the Catholic Church, the Jews, labour unions, and certain city bureaus. Mr. Shuyler's defense was not an offer to prove the truth of these attacks but merely a statement that "these were his sentiments." The station was deleted by the Commission, and this action as upheld in the courts as neither censorship on the part of government nor a denial of free speech.

In another case in which a license renewal was refused, the Commission held that it was not in the public interest to permit a station to operate for the personal advantage of the owner, Dr. John Richard Brinkley. Dr. Brindley had aroused the ire of the medical association by making diagnoses over the air, often prescribing one or more of his own patent medicines. It was held that such practices were against the interest of the public health. The court, on appeal, upheld the Commission. This case indicated that the Commission considered the public interest violated when stations were used in pursuance of private interests without regard to the welfare of the total community.

The Commission went much further in defining the rules of fairness in the Mayflower case. For more than a year a Boston station, before the Commission for license renewal, had broadcast editorials urging the election of various candidates for public office or supporting one side or another of controversial questions. Section 315 was not an issue since it was not the broadcasting of candidates themselves which was questioned but rather so-called editorials supporting a particular candidate or viewpoint. The resulting decision became binding upon

all stations. Under the American system of broadcasting, it is clear that responsibility for the conduct of a broadcast station must rest initially with the broadcaster. It is equally clear that with the limitations in frequencies inherent in the nature of radio, the public interest can never be served by a dedication of any broadcast facility to the support of his own partisan ends. Radio ca serve as an instrument of democracy only when devoted to the communication of information and the exchange of ideas fairly and objectively presented. A truly free radio cannot be used to advocate the causes of the licensee. It cannot be used to support the candidacies of his friends. It cannot be devoted to the support of principle she happens to regard most favorably. In brief, the broadcaster cannot be an advocate.

Freedom of speech on the radio must be broad enough to provide full and equal opportunity for the presentation to the public of all sides of public issues. Indeed, as one licensed to operate in a public domain, the licensee has assumed the obligation of presenting all sides of important public questions, fairly, objectively, and without bias. THe public interest-not the private-is paramount. These requirements are inherent in the conception of public interest set up by the Communications Act as the criterion of regulation. This decision by the Federal Communications Commission stood without challenge in the courts until it was modified on june 1, 1949, after a hearing held on the commission's own initiative on the issue of "editorializing."

As the libertarian theory developed, it was, of course, affected by current issues and trends. As industrialization increased in the United States and combines and trusts appeared, these accumulations of economic power appeared to threaten man's freedoms in way similar to the threats by autocratic government in

the past. Trust-busting became popular and monopoly was considered dangerous per se. Broadcasting came into being at the time of greatest sensitivity to "bigness" and "monopoly." It was only to be expected, therefore, that the Communications Act would contain provisions to prevent monopoly. Sec. 311, for example, directs the Commission to refuse a station license to any person "which has been finally adjudged guilty by a Federal court of unlawfully monopolizing or attempting unlawfully to monopolize, radio communication or to have been using unfair methods of competition.

The Commission has, likewise, been sensitive to the dangers of monopoly as this affects radio communication. In the first place, it has limited the power of radio stations. Concerned with the lack of adequate coverage of certain rural areas in the United States, the FCC at one time had granted Station WLW in Cincinnati an experimental license providing for 500 kilowatts power in contrast to other clear-channel stations which had a ceiling of 50 kilowatts.

The Cincinnati station enjoyed this advantage for several years, much to the distress of other radio stations in the area. It was alleged that sponsors could buy time on the one station more cheaply than they could buy time on the one station more cheaply than they could buy time on the score or more other stations required to cover the same territory. It was also pointed out that such power constituted a concentrated control over the content of radio communications. When the Commission failed to act promptly on these complaints, the Congress itself took action in the form of a resolution expressing the judgment that power in excess of 50 kilowatts was not in the public interest. The FCC promptly revoked the experimental grant of superpower and reduced the station to 50 kilowatts.

In the late thirties the Federal Communications Commission began a study of the monopoly of radio communication as related both to networks and to local areas. This study revealed that 90 per cent of the nighttime broadcasting power was utilized by stations affliated with only two network companies, the National Broadcasting Company, which operated two networks, and the columbia Broadcasting system. Independent stations and those affiliated with the Mutual Broadcasting System were characteristically of low power and coverage, even though they represented a considerable percentage of the total number of stations then holding licenses. The commission found that the contracts between the networks and their affiliated stations were so exclusive as to bar a station from carrying any network programs except from the affiliated network even though it had the available time and the other network was willing. Furthermore:

It found that some stations had a contractual right to keep neighboring stations from broadcasting those programs which they rejected, thus depriving listeners in that community of particular network programs. It found that the networks optioned the choice hours of most of its stations, thus handicapping the affliated stations in the development of programs to serve local community needs. The time under option vastly exceeded the time used by the networks.

The Commission thereupon issued, in May, 1941, new regulations governing chain broadcasting. The practices cited above together with other restraining practices, were banned. The National Broadcasting Company was ordered to divest itself of one of its networks. It was ordered that no one person or company could own more than one station of the same type in the same coverage area. The commission said:

> We believe that these regulations will foster and strengthen network broadcasting by opening up the field to competition... Radio broadcasting is competitive industry. The Congress has so declared it in the Communications Act of 1934 and has required the fullest measure of competition possible within physical limitations. If the industry cannot go forward on a competitive basis, if the substantial restraints upon competition which we seek· to eliminate are indispensable to the industry, then we must frankly conceive that broadcasting is not properly a competitive industry...We believe, however, that competition, given a fair test, will best protect the public interest. That is the American system.

The report of the Commission was appealed to the Courts but was upheld by the Supreme Court and went into effect in 1943. The rules of the FCC make another provision to prevent a possible monopoly of broadcasting communication. The number of stations of the same type that can be owned by a person or company is limited to no more than five television stations, six FM stations, or seven AM stations.

While monopoly, as so far considered, is economic as well as in terms of the content of communications, the commission has not been blind to the possible dangers of the latter. Is it in the public interest to permit joint ownership of both radio stations and newspapers? The Commission conducted a hearing on this question in 1941. It was revealed that of some 800 standard broadcast stations, approximately 200 were owned to the extent of 50 per cent or more by newspaper interests, and 48 others were to some extent controlled by newspapers. Even more alarming, from this point of view, was the fact that in 90 communities the sole radio station was controlled by or associated with the only newspaper.

The Commission did not adopt any general rule as a result of this hearing. Indeed, through the years, it has blown hot and cold on the subject. As a general policy, however, when the Commission is considering two competing applications, it gives preference to the nonnewspaper application, other things being equal.

In the more than twenty-five years of broadcasting growth up to 1946, the obligations involved in serving the "public interest" had never been defined. The various rules and decisions of the Commission, together with the basic communications Act, made it clear that, to obtain and continue to hold a broadcast license, the station must operate in the "public interest, convenience, or necessity," and that this involved putting the public's interest ahead of the interest of the licensee, presenting controversial material so as to provide access to important points of view by listeners,using "fairness" in such presentation, and having an over-all well-balanced service. What constituted a "well-rounded program service" was particularly vague.

In 1929, the old Federal Radio Committee had declared that it should consist of "entertainment, consisting of music of both classical and lighter grades, religion, education, and instruction, important public events, discussion of public questions, weather, market reports, nd news and matters of interest to all members of the family."

In 1934, the National Association of Broadcasters, in congressional hearings, declared that public service "necessarily includes broadcasting of a considerable proportion of programs devoted to education, religion, labour, agriculture, and similar activities concerned with human betterment. "And stations generally have, in practice, recognized the principle started by William S. Paley, former president of the Columbia Broadcasting

System, that time should be made available to recognized public groups. He testified in 1934: "We hold our license by serving the public interest, convenience, and necessity. And only by adequate co-operation with all public spirited groups can we be deemed to perform the conditions of our contract."

Contrary to popular belief, the Federal Communications Commission has never specified a fixed amount or percentage of time to be devoted by stations to programs serving the public interest. Neither has it specified an amount or percentage of time to be devoted to sustaining programs in contrast to commercially sponsored programs. Such suggestions have been made to the Commission through the years both by members of the Congress and by other influential persons, but the Commission has taken the position that individual circumstances vary so widely from station to station that such a fixed requirement would have little meaning. Rather, the Commission has insisted that the performance in the public interest by a station can best be judged by inspecting its over-all programming.

Finally, however, on March 7, 1946, the Commission did attempt to indicate more exactly the types of public service performance by stations which would be considered as a basis for reviewing licenses. This was the famous "Blue Book," a report by the Federal Communications Commission which was titled: *Public Service Responsibility of Broadcast Licensees.*

In this bulletin the Commission stated that there were "four major issues currently involved in the application of the `public interest' standard to program-service policy; namely, (a) the carrying of sustaining programs, (b) the carrying of local, live programs, (c) the carrying of programs devoted to public discussion, and (d) the elimination of commercial advertising excesses."

While the Commission did not attempt to fix any proportion of time to b devoted to sustaining programs, it asserted that such programs have "an integral and irreplaceable part in the American system of broadcasting." Sustaining programs are those for which the station receives no remuneration. Such programs cannot be omitted from a station's offerings or even the seriously reduced in quantity if the station is to serve the public interest. This is because sustaining programs serve five important functions:

1.   To secure fo the station or network a means by which, in the over all structure of its program service, it can achieve a balanced interpretation of public needs.

2.   To provide programs which by their very nature may not be sponsored with propriety.

3.   To provide programs for significant minority tastes and interests.

4.   To provide programs devoted to the needs and purposes of non-profit organizations.

5.   To provide a field for experiment in new types of programs, secure from the restrictions that obtain with reference to programs in which the advertiser's interest in selling goods predominates.

"But," said the FCC, "while networks and stations alike have traditionally recognized the importance of the sustaining program as an integral part of the American system of broadcasting, there is evidence to suggest that such programs are disappearing from the program service of some stations, especially during the best listening hours. From the annual reports of stations and networks to the Commission, in which program structures for January, 1945, were analyzed, certain tabulations were made by the Commission. After pointing our certain weaknesses in the data supplied by

the stations, the FCC suggested that the following conclusions seemed warranted: First, the largest stations carried a considerably smaller percentage of sustaining programs than the smaller stations, and, second, the proportion of time devoted to sustaining programs during the best listening time from 6.00 to 11.00 p.m. was lower than during other hours. Even more striking was the death of network sustaining programs.

Examples were cited to indicate "the failure of American broadcasters to provide nation-wide distribution for even outstanding network sustaining programs.." This situation was declared to result from two factors: "first, he failure of the networks to supply sustaining programs in quantity during the best listening hours and, second, the failure of some stations to carry even those network sustaining programs which are offered."

The second factor to be used in judging performance in the public interest was the carrying of local, live programs. Such programs are the means by which stations can provide for local interests, activities, and talent. The Commission pointed out that assurances by an applicant that he will use local talent, deal with civic matters, report local news and market reports, and cover civic and political activities have contributed to favorable decision on many applications.

In the Supplemental Report on Chain Broadcasting, the commission noted that it "has been the consistent intention of the Commission to assure that an adequate amount of time during the good listening hours shall be made available to meet the needs of the community in terms of public expression and of local interest." Furthermore, the Commission cites there examples to suggest "that local programming may also be good business policy and may contribute to the popularity of the station."

Using January, 1945, as a basis, the "Blue Book" reports all stations averaging 12.7 per cent of their time on the air devoted to local commercial programs and 7.0 per cent of their time given to local sustaining programs. here, again, during the "good hours" of 6.00 to 11.00 P.M., nonnetwork, nontranscribed programs were considerably rare.

The Commission quotes figures indicating that stations paid $3.30 for salesmen for every $1.00 paid for writers, and that the average station employed less than one-third of a full-time musician and less than one-sixth of a full-time actor. It concludes with regard to local programming:

> Such figures suggest, particularly at the local-station level, that few stations are staffed adequately to meet their responsibilities in serving the community. A positive responsibility rests upon local stations to make articulate the voice of the community. Unless time is earmarked for such a purpose, unless talent is positively sought and given at least some degree of expert assistance, radio stations have abdicated their local responsibilities and have become mere common carriers of program material piped in form outside the community.

The third factor, suggested in the "Blue Book" as a standard of public interest programming, was the carrying of programs devoted to public discussion. In discussing this elements, the Commission noted that there were many complex problems involved and that their solution rested, under the Communications Act, primarily upon the broadcasters themselves. "Probably no other type of problem in the entire broadcasting industry," the report asserts, "is as important, or requires of the broadcaster a greater sense of objectivity, responsibility, and fair play." The Commission is required periodically to review a station's operation, to

determine whether it has operated in the public interest. The station's establishment of sound policy with respect to news, information, and the discussion of public issues is a major factor in operation in the public interest, says the report.

The quantity of time which a licensee makes available for the discussion of public issues is an important part of over-all program structure. BEcause "any vigorous presentation of a point of view will of necessity annoy or offend at least some listeners," there may be a temptation for broadcasters to avoid discussion programs. This, is Commission stated flatly, would "thwart the effectiveness of broadcasting in a democracy." The Commission, therefore, concludes that: The public interest clearly requires that an adequate amount of time be made available for the discussion of public issues; and the commission, in determining whether a station has served the public interest, will take into consideration the amount of time which has been or will be devoted to the discussion of public issues.

The final factor to be used in judging station performance in the public interest was started in the report to be the "elimination of commercial advertising excesses." While recognizing the value of advertising as the only source of revenue for most american stations and the role it plays in the distribution of goods and services the Commission notes that this "does not mean that broadcasting should be run solely in the interest of the advertisers rather than that of the listeners. Throughout the history of broadcasting, a limitation on the amount and character of advertising has been one element of "public interest."

The Commission indicated that there has been a steady increase in the amount of time devoted to advertising from the beginning of the regulation, in 1927,

to the date of the report, in 1946. Furthermore, a study of the actual practices of stations in Washington, D.C., indicated that the NAB standards were "as honored in the breach as in the observance."

The Commission further noted certain problems "to stimulate further research." listing (a) length of individual commercials, (b) number of commercials, (c) piling up of commercials, (d) time between commercials, (e) the middle commercial, (f) the patriotic appeal, (g) propaganda in commercials, and (h) intermixture of program and advertising. This, the Commission states, is not to b e taken "as an exhaustive list of advertising excesses." Indeed, "it is not the intention of the Commission to concern itself with advertising excesses other than an excessive ratio of advertising time to program time..."

Presumably, then, this ratio of advertising time to program time is the factor is the factor the Federal Communications commission will consider in judging station performance in the public interest.

In concluding the report, *Public Service Responsibility of Broadcast Licensees*, the Commission indicated that it would implement these standards by making certain changes in application forms for new stations and for license renewals, and in annual reports and statistics, so that it can make judgements as to the observance, proposed or past, of these standards by broadcasters as the basis for licensing.

The principle of "fair play" in the treatment of controversial matters, in order to afford free access to varied points of view on the part of listeners and viewers, has undergone a number of refinements, in the last few years, through cases which have come before the Commission.

In the WHKC case, in 1945 a columbus Ohio, station had its renewal application set for a hearing because a CIO Union had protested its inability to buy time to present labour's case on he air. The station defended this practice on the ground that it gave time free for the presentation of controversial matter, and refused to sell time to any party to a dispute, except, of course, for political talks during a compaigan. In so doing, the station declared, it was following a provision of the Code of the National Association of Broadcasts which was designed to promote fairness by making it impossible for interests with greater financial resources to have a preponderant influence.

The labour group started that, on the free time provided the local of the Untied Automobile Workers, their talks were subject to stringent censorship on the part of the station. In addition, since the UAW believed that it could not make its views known through the newspapers, it was in the public interest for time to be provided for the airing of labour views, time for which the UAW was willing to pay. The UAW also attempted to show that the over-all program balance of the station favored industry and business, not only because certain commentators were biased in this direction but also because the commercial programs were sponsored by business and industry- as sort of tacit endorsement-while labour and professional groups were prohibited from buying time.

In reviewing the license at the request of both parties after Station WHKC had promised to afford unions a reasonable opportunity to be heard, the Commission asserted the general policy that licensees had the "affirmative duty" to make provision of the airing of the important viewpoints of those involved in controversy of public importance in the community. This opened the gates to the selling of time to labour

organizations. In the Scott Case, in 1946, the issue was
whether a station must give time to a view point
generally opposed by an overwhelming majority of
listeners, when the station regularly gave time to the
contrary, but generally approved, point of view. The
petitioner, Robert Harold Scott, was self-professed atheist.
He filed a petition with the FCC, asking for the
revocation of the licenses of three California stations
because they refused to give him time to discuss atheism
while regularly carrying religious programs which
attacked atheism.

The Commission denied the petition but issued a
general opinion concerning the aiming of unpopular
viewpoints. Every idea does not rise to the dignity of
"public controversy," and every organization, regardless
of membership of the seriousness of purposes, is not per
se entitled to time on the air. But an organization or idea
may be projected into the realm of controversy by virtue
of being attacked. The holders of a belief should not be
denied the right to answer attacks upon them or their
belief solely because they are few in number.

The fact that a licensee's duty to make time available
for the presentation of opposing views on current
controversial issues of public importance may not extend
to all possible differences of opinion within the ambit of
human contemplation cannot serve as the basis for any
rigid policy that time shall be denied for the presentation
of views which may have a high degree of unpopularity.
The criterion of the public interest in the field of
broadcasting clearly precludes a polity of making radio
wholly unavailable as medium for the expression of any
view which falls within the scope of the Constitutional
guarantee of freedom of speech.

As was suggested previously, the Mayflower
Decision, which in effect barred all editorializing on the

part of broadcast stations, was revised in 1949, after an extended hearing on the Commission's own motion, to permit expression of editorial viewpoints as long as equal opportunity was afforded for reply. It has been argued that the Mayflower Decision prevented stations from engaging in activities aimed at civic betterment and that the station licensee did not have the same freedom to voice his own viewpoints that other representatives had.

In reviewing the whole matter, in this opinion, the Commission stated its philosophy of the right of the public to be informed. Because of the importance of disseminating news and ideas on vital public issues, the Commission has expected licensees to devote a reasonable percentage of their time to such programs. And we have recognized, with respect to such programs, the paramount right of the public in a free society to be informed and to have presented to it for acceptance or rejection the different issues which are held by the various groups which make up the community. It is this right of the public to be informed, rather than any right on the part of the government, any broadcast licensee, or any individual member of the public to broadcast his own particular views on any matter, which is the foundation stone of the American system of broadcasting.

Thus the licensee must operate on a basis of over-all fairness, "making his facilities available for the expression of the contrasting views of tall the responsible elements in the community on the various issues which arise." He should avoid the assumption that he must insure fair presentation of all sides before allotting time to a controversial matter, however, because, in may instances the "primary 'controversy' will be whether or not the particular problem should be discussed at al!; in such circumstances, where the licensee has determined that the subject is of sufficient import to receive broadcast attention, it would obviously not be in the pubic interest

for spokesmen for one of the opposing points of few to be able to exercise a veto power over the entire presentation by refusing to broadcast its position."

Fairness, in such circumstances might require not more than that the licensee make a reasonable effort to secure responsible representation of the particular position and, if it fails in this effort, to continue to make available this facilities to the spokesmen for such position in the event that, after the original programs are broadcast, they then decide to avail themselves of a right to reply to present their contrary opinion.

But the broadcasters responsibility goes even further. They have an affirmative duty generally to encourage and implement the broadcast of all sides of controversial public issues over their facilities, over and beyond their obligation to make available on demand opportunities for the expression of opposing views. It is clear that any approximation of fairness in the presentation of any controversy will be difficult if not impossible of achievement unless the licensee plays a conscious and positive role in bringing about balanced presentation of the opposing view-points.

With this as a background, the Commission concluded that the presentation of public discussion by a station "may include the identified expression of the licensee's personal viewpoint as part of the more general presentation of views or comments on the various issues, but the opportunity of licensees to present such views may not be utilized to achieve a partisan or one-sided presentation of issues." Stations are free to editorialize, but only if they give equal opportunity for opposing viewpoints.

The most recent development, affecting the public interest in the field of broadcasting, wa the action of Federal Communications Commission in the final

television allocation report of April 14, 1952, reserving 242 out of more than 2,000 television channels throughout the United States and possessions for the exclusive use of noncommercial educational television stations. This was a recognition of the fact that the use of broadcasting for educational purposes was of prime importance in the public interest and that the AM radio situation, in which education was largely dependent upon the granting of free time by commercial broadcasters, had not worked out satisfactorily.

Because educational institutions require more time to marshall their resources in order to undertake the construction ad operation of such stations. the Commission reserved channels for this use. In effect FCC recognized "the right of access" of viewers to programs of information and education which were not available in sufficient quantity or at convenient times on commercial stations and set aside channels upon which noncommercial educational stations might at a later time be built in order to ensure such programming.

Thus, in the very structure of television in this country, there is a clear recognition of the priority of education in the public welfare. It is too important in broadcasting to be delegated to such free time as commercial licensees may be able and willing to provide. Education s to be given time in which to develop plans for utilizing this most effective tool directly through stations which they own and operate.

The Commission arrived at this decision after extensive hearings in which 76 witnesses appeared, all but five of them supporting the general case of organized education. On the basis of the record, the Commission concluded:

> That there is need for noncommercial educational television stations; that because educational institutions require more time to prepare for

television that commercial interests, a reservation of
channels is necessary to insure that such stations
come into existence; that such reservations should
not be for an excessively long period and should be
surveyed from time to time; and that channels in
both the VHF and UHF bands should be reserved.

The Commission sees these educational stations not only
as making contributions to organized education but also
as supplementing commercial programming.

The record show the desire and ability of education
to make a substantial contribution to the use of
television. There is much evidence in the record
concerning the activities of educational organizations in
AM and FM broadcasting. It is true and was to be
expected that education has to utilized these media to the
full extent that commercial broadcasters have, in terms of
number of stations and number of hours of operation.

However, it has also been shown that many of the
educational institutions which are engaged in aural
broadcasting are doing an outstanding job in the
presentation of high-quality programming and have been
getting excellent public response. And most important in
this connection, it is agreed that the potential of
television is much greater and more readily apparent
than that of aural broadcasting, and that the interest of
the educational community in the field is much greater
than it was in aural broadcasting.

Further, the justification for an educational station
should not, in our view, turn simply an account of
audience size. The public interest will clearly be served if
these stations are used to contribute significantly to the
educational process of the nation. The type f programs
which have been broadcast by educational organizations,
and those which the record indicates can and would be
televised by educators, will provide a valuable

complement to commercial programming. The movement to develop, build, and operate these educational stations has been furthered not only by educators but by citizens generally. Like the struggle for free public schools a century ago, the present effort has enlisted men and women from all walks of life who see in educational television a potential or raising the level of citizenship and improving the day-to-day living of both adults and children.

The pattern of support for these stations differs widely from one community to another. In some, one educational institution-a university or a public school system-is to become the licensee with programming support from other institutions and organizations. In other communities, public and private institutions of common school an college level go together to form a nonprofit corporation to operate the station. Taxation is the financial support in some situations; foundations and private philanthropy, in others; while will other will depend upon community fund-raising campaigns and various combinations of sources.

What is to be noted, however, is that the special provision by government for educational television is establishing a new pattern of broadcasting and that citizens have become involved to a degree that is unprecedented. While commercial stations are not relieved of their educational responsibilities by 'he provision of educational stations, we can expect that the educational function of broadcasting will be greatly increased for the average viewer.

Many minority interests and needs, not heretofore met by this mass medium will be catered to. Serious and informative programming will be available at hours when the greatest number of viewers is available. In short, education in the home through television will

become a reality. Surely this, too, extends the freedom of unimpeded access to information and education which is the heart of the libertarian theory. Broadcasting functions to bring consumers entertainment, informative and educational material, and advertising. To the businessman it offers an opportunity for profit and an obligation to serve the public interest. In our society, broadcasting has evolved rom a practically unregulated medium to a social instrumentality charged with heavy responsibilities through the privilege of governmental license.

The concept of libertarian theory as meaning protection of a medium form the tyranny of government has developed into a concern for protecting listeners and viewers in their right of access to all important points of vie, with a government agency made responsible by Congress for ensuring that stations thus operate in the public interest. The rules of fairness, by which stations operate, have evolved gradually from a series of public concerns over monopoly, controversial issues, editorializing, program standards, and finally, educational stations.

5

Satellite Instructional Television Experiment

The satellite instructional Television Experiment in India was in large part a technical feasibility study of satellite transmission in a developing county. It had an important educational broadcasting component. This chapter is based on a case study of the organization and management of SITE's educational broadcasting written by Kiran Karnik a senior staff member in the Indian space research organisation, which was responsible for overall planning of the project.

Site was based on a 1969 agreement between India's Department of Atomic Energy and the national Aeronautics and Space Administration of the United State. India wanted to stimulate national development and gain experience in satellite broadcasting. The united state wanted to demonstrate the potential value of satellite technology for mass communications in developing countries.

India carried out a number of pilot studies, including an agricultural television project in villages near Delhi, before setting up the experiment. The United state sent into space a powerful satellite, ATS-6, capable for receiving signals from earth transmitters ad broadcasting directly to cheaply produced antennae located in India's remote villages. These 3m antennae,

made of chicken wire were part of direct reception systems that fed signals from the satellite to large television sets in the schools for use by children in the mornings and adults in the evenings. As the satellite was able to broadcast to large part of India, over 2,330 villages were included in the experiment in six geographical clusters. Clustering the villages mad maintenance of equipment easier and provided comparatively homogeneous groups of a sufficiently large size for social research. Studies were undertaken to establish the needs of the villagers who could be served by television and to identify the characteristics of the audiences. The experiment was limited duration, however, since the satellite was made available only for one year.

Organizational structure

The organization structure of SITE was complex because of the involvement of a number of agencies as well as on account of the project's multiple objective. There was, however, a period of debate before agreement was reached. For example., the Indian Space Research organisation had originally hoped to have no responsibility for producing programmes and it wished to have contract with other agencies for the social evaluation. Karnik does not go into detail concerning the organizational structure of Doordarshan other wise known as Television-India , which was formed from part of All-India Radio in the middle of the project's life. AIR then DD, was responsible for programme production center and transmitters for the majority of the television programmes DD's structure was centralized, with Delhi controlling other stations. It had the capacity to produce very quickly the extremely large number of programmes needed by SITE. Karnik doe offer an account if ISRO's organizational structure, however. At the higher level, ministries of the national government of India were represented on the Secretaries Committee, which

considered national policy regarding SITE, with participation fro potential user ministries such as Health Educational Agriculture as well as from provider ministries, namely space and information and Broadcasting.

For more specific decisions, two interministerial committees were created to co-ordinate SITE, but in fact they were not very active. The Secretaries for space and for information and Broadcasting, responsible respectively for ISRO and AIR/DD, constituted the Apex Committee for the project and this committee took ultimate decision regarding collaboration between the two organisation. Yet, Say Karnik, the all important ISRO-AIR/DD interaction took place primarily through the ISRO-AIR/DD working Group, which consisted of persons actually responsible for SITE from the two its decision were automatically ratified by the Apex committee. The group turned out to be very effective; it could not afford to reach an impasse although frequently there was lengthy and heated debate. This effectiveness was the more remarkable in view of considerable organization differences between ISRO and AIR/DD. The latter was an operational agency with many years of experiences says karnik, while ISRO was relatively a new research and development group with no previous experience in television programme production or utilization. AIR/DD was a programme production organization, ISRO an engineering group with a technological focus.

The Programme Manager for SITE had overall responsibility for the project within ISRO. Several ISRO division were given specific areas of responsibility heads of these division, which had other work as well as SITE, were designated project managers for the SITE activities in their Divisions. Project Managers were involved in two lines of management: to the Programme Manager, SITE, as well as to the Chairman of ISRO. The Chairman of

ISRO is Secretary for space in the government. Within
site was a management office, supporting the work of the
programme manager and of the SITE management Board,
which was made up of the project managers, the
Programme Manager and the Manager of the office. This
office organized organizations. If there was no
disagreement in the Working Group, to the he
scheduling, budgeting, manpower and facility planning
and liaison with idea and foreign agency., The Board was
the focal point for considerable team work among the
Project Managers. The Boards took major decision about
ISRO's role in SITE, or sent recommendations to the
chairman of ISRO for final decision. In general, there was
considerable delegation of authority within he project,
leading to decentralization under the co-ordination
Meeting involving all ISRO's SITE component;
production transmission, earth station operations, direct
receiving station maintenance, research and so on.

Certain Divisions of ISRO, such as Electronic
System, developed low-cost television equipment for use
during SITE including the direct reception systems which
had easily replaceable components to aid maintenance.
Within ISRO, a software system group was established to
carry out programme production to assist utilization and
to carry out social research and evaluation. Three cells of
staff were responsible for these three areas of activity.
The manager of the production cell was in Ahmedabad;
he had an Executive Producer at the other ISRO
programme production central in Bombay. The engineers
in these two centers, however, reported to the head of the
Electronic systems Division, and this caused some
difficulty as well as bringing benefit in the form of
modified or newly developed studio hardware. The
manager of the Production Cell delegated approval at
various stages of programmes planning to several other
committees, but ISRO television producers had

considerable freedom in planning and executing their programmes within ISRO general objectives. Karnik summarizes the objective for site, laid down in the original India-American agreement, as general, instructional and technical.

General objectives

Gain experience in the develcpment, testing and management of a satellite based INSTRUCTIONAL television system, particularly in rural areas, and to determine optimal system parameters. Demonstrate the potential value of satellite technology in the rapid development of effective mass communications in developing countries. Demonstrate the potential value of satellite television broadcasts in the practical instruction of village inhabitants. Stimulate national development in India, with important managerial, economic, technological and social implications.

Instructional objectives.

Undertaken instruction in the fields of family planning, agriculture, national integration, education, teacher training, etc.

Technical objectives

Provide a system test or satellite television broadcasts for national development. Enhance Indian capability in the design, manufacture, deployment, installation operation and maintenance of broadcast and/ or distribution facilities. Gain an opportunity to determine optimum receiver density, distribution and scheduling;' to determine techniques of audience attraction and organization, and to solve problems involved in developing, preparing, presenting and transmitting television programmes. These objective were kept under review by SITE"s various committees but were not changed during the project. In addition, a statement of

objectives was drawn up for programme production for each major series, such as the science series for children. This formed the basis for detailed briefs for each programme.

Production

personnel

AIR/DD staff for SITE were trains or retrained at India's UNESCO ASSISTED Television Training Center ISRO was obliged to recruit staff with no previous television training or experience, but saw in this an advantage. Such staff were free of preconceptions and had not been trained within ur! an television, which was modeled on television develop countries; therefore they were able to take a fresh approach to the problems of producing instructional programmes for rural community viewing. In fact, of ISRO's fifteen producers in SITE only one had television experience, but all had been trained in film production, most of them in a three year post graduate course within he Film institute of India. ISRO's cameramen film editors and sound recordists had also been trained at the Film Institute. Production assistants were recruited from local theatre groups. Together, AIR/ DD and ISRO had about 35 producers, 250 other production staff and 140 technical staff working on SITE.

ISRO producers encountered difficulties of various kinds; for example, several had to learn a new language, Gujarati, that was being used for some of the transmission. Other had to earn new subject matter for ISRO's science programmes. They had to work with user ministers, especially the extension agencies even to the extent of training a few of the staff of one co-operative dairy to television producers themselves. Such local personnel had something important to say to rural audiences, and Isro's producer could help them to say it on television, but satellite.

In general;, however, ISRO ad difficulty in finding subject matter experts who not only knew their facts but also knew how to work in a team with producers and other ISRO staff. There was also a scarcity of trained evaluators of television programmes; only two could be found both foreign trained, one for Ahmedabad and one for Bombay.

Management of ISRO's Bombay Production

The Bombay studio was responsible for producing about 150 science education programmes for schools, each of 10-12 minutes' duration. Although this work feel with the production cell, immediate authority I Bombay was vested in a an Executive Producer, who had the help of a production manager. The task of the latter was to facilitate production by making available at appropriate times the scarce facilities and manpower.

Plan for this studio were drawn up based on an estimate of the total production required. These included targets for each month and for each producer. Producers raw up work schedules by the most, based on transmission schedule. Test schedules allows days for each production process; shooting; editing, assembling, recording, etc. A master production schedule was drawn up by the manager of the production Cell so that facilities and resources were used to the best advantage. Once these plans had been laid, producers, had almost complete authority during programme making, although there had to be various informal meetings to insure continued coordination. Flexibility was retained by means of a weekly productions schedule that updated the master schedule, and by means of a call sheet issued jointly by the producer an the Production manager forty eight hours before actual shooting of recording. In spite of these safeguards, however, schedules sometime had to be changed at the last minute; a few low priority

programmes that could be made at very shot notice were kept in reserve in order to avoid leaving the facilities idle on these occasions. To monitor production, the production Manger required a Daily Production Report fro each producer shooting or recording. This report contained details of any problems as well as a routine account of what had been done. Form producers; reports, the manager compile his own Daily Report, then used the Week's daily reports to prepare a Weekly Summary, and in turn, and Monthly Report Providing an overview of SITE management of what ad occurred, analyzing performance in relation to targets Each week the Programme preview committee saw programmes, partly to approve them for transmission partly to evaluate producer's work. ISRO's decision to use teams caused certain delays: producers were unable to dodo much until programme content had been finalized, then had a great deal to do. The production manager had the task of inorganic out these peaks and valleys in individual productivity, while maintaining a steady overall output.

Operational procedures in ISRO's programme production

A set of broad objectives, confined in the Credo, formed the basis upon which programme briefs were written. Each brief centered on a particular topic and laid down the objective of the programme, its relevance to the rural child, the suggested approach and a take off point. Each proper then close a set of briefs on the same topic; he or she made the programmes for that topic unless than manger of the Production cell was obliged to change the allocation to insure full coverage of topic without duplication. A team was gathered together to make each programme. Content experts mostly came from one of the institutions with which ISRO had formal agreements. The scriptwriter was sometimes the proper himself. The social researcher on ISRO's Bombay staff was member of every team. Once a script had been producer within the teem, it

usually had to be approved by the script committee, which looked at it suitability for the target audience, its relationship to the Credo and its literary value. programmes on agriculture, health and science did not go through the committee but were finalized in consultation with appropriate experts, once the script was agreed, the producer was responsible for working out a detailed plan; for casting for choosing appropriate music in consultation with the music director; for scheduling rehearsals, music recordings transport and so on; for budgeting and operating the budget; for reporting; for pretesting for presenting his programmes to the preview Committee and for preparing note on each programme fro teacher use.

Utilization

The user agencies were substantially involved in selecting program content but not as much in utilization, in spite of India's considerable extension infrastructure. Committees set up to co-ordinate utilization had little effect. ISRO did carry out a limited experiment in the area of agriculture and health, however, involving one block in each SITE cluster of villages, In each block, five villages with television sets were chosen and place under a co-ordinator who worked with the extension agencies and organized follow-up activity. For each cluster, five programmes were chosen each month and intensive utilization was organized around these in the selected villages. For each programme in each cluster, the co-ordinator approach an expert in the extension agency; gave him the programme synopsis in advance; collected suitable printed material ensured that the expert was in the village during transmission and that he talked to the television audience after transmission, and that he talked to the television audience after transmission, and arrange distractions, where appropriate, on the following day. During SITE about 150 village discussion of this type

were held. This method proved more successful in increasing knowledge of agricultural practices among the participants than the 'television only' method used in other village nearby.

To aid utilization the science programmes for children, ISRO collaborated with he Vikram Sarabhai Community Science Center in producing a monthly wall newspaper covering the topic in the science programmes for that month plus other general science features. In addition, the teacher' notes for each programme provided synopsis, explanation of key words, and suggested per and post broadcast activities. These notes were translated into all four SITE languages and distributed to all SITE villages.

Karnik provides a their example of utilization in SITE. Since programmes on agriculture offered little to handles laborers, ISRO produced and broadcast a series on cottage industries, i.e, on making products at home with minimal investment and expertise for the local market. The programme aimed at motivating viewers and gave details of where to find the raw materials and how to make the products. Interested view's were invited to write for more details and received simple illustrated manuals in reply. A bank agreed to make small loans to help people to get started and later programme in the series emphasized marketing techniques. Thus utilization was aided by a comprehensive approach that touched on every aspect of helping the potential audience to set up cottage industries.

Evaluation of effects

The effects of specific programmes were first tested during production. Scripts were pre-tested by reading them aloud in villages to seen whether they contained language that was too difficult and to ascertain how much interest they evoked. Very few SITE television

programmes were actually per-tested, due to pressure of time and equipment shortages. ISRO's science programmes for children were an exception; they were pre-tested , using portable half inch videotape equipment, with very useful results.

Further evaluation of effects occurred each day when one research went into each of twenty five villages to interview ten to fifteen respondents after the broadcasts. They asked the villagers which programmes they had like best, which they found most useful; they checked on villagers' comprehension of programme content; they asked about the quality of reception and how long he programmes had lasted. The researchers did this in regard to both the morning programmes for children and the evening ones for adults.

In addition, writes karnik, there were many studies of the social impact of SITE, including:

(1) a large scale longitudinal survey of social impact on adults. Carried out before, during and after SITE and governing a sample of 7,000 in twelve experiments and control villages.

(2) a study of cognitive development of school children in 122 villages together with a study of changes in their teachers;

(3) holistic anthropological studies of one village in each of six clusters carried out by researchers who lived in the villages for eighteen months, starting three months before SITE began, in order toe examine the process of rural communication before SITE, the role of television as a new medium and the process of change brought about by SITE at the local level;

(4) a message system analysis, aimed at determining what was transmitted.

ISRO carried out most of this work itself, under the eye of its own SITE social Research Co-ordination Committee, which included prominent social scientists from other institutions. A survey research Group was swept up to plan, exact and analyze the survey of adults.

Karnik Summarizes the main findings from SITE;

(1) average daily attendance per set normalized at 80-100:

(2) about 30 per cent of Indian people who had no previous contact with mass medium were reached by SITE;

(3) audiences preferred INSTRUCTIONAL programmes to pure entertainment;

(4) children's programmes were intended for those aged 5-12, but gained more than occasional viewers;

(5) those who viewers most gained most knowledge; regular viewers gained more than occasional viewers;

(6) illiterates, particularly females, gains more than literates in the area of overall modernity;

(7) a large number of agricultural innovations were triggered by the television programme, although the evidence of their ultimate success was mixed;

(8) there were substantial gains in health, hygiene and nutrition; female viewers, particularly illiterates, made dramatic gains;

(9) children watching the morning programme gained in language development and other areas. More children watched than there were registered students in the schools.

Finance

The SITE ground system was the responsibility of the Indian government, which financed it through various

agencies, in particular ISRO AIR/Doordarshan and NCERT Individual states bore a further 3 per cent of costs, and UNDP bore 9 per cent. Severe ministries made contributions through the work of their extension agencies. Mody offers a different breakdown of expenditure; she says that 82 per cent was spent on hardware, not including the satellite, per cent on software production, 3 per cent on social research and evaluation and 6 per cent on co-ordination and management.

6

Listening and Reading

These days when the family settles down in the evening, some from of video most likely furnishes the fantasies. Children in the 1980s anticipate seeing their favorite shows on television, cable, or on video cassette. Not that radio has disappeared from our lives. Far from it. There are more radios in America today than televisions and telephones combined. Count the radio in your house. But radio listening has changed. Physically, radio are smaller, more portable, and specially equipped for solo listening. Mysteriously wired pedestrians, bicyclists and bus passengers move to rhythms only they and their Walkman can hear. Radio now offers deferent program content too. Even with dramatic productions from Children's Radio Theater, The Web, New Waves and others, there is little fiction for children available on the air. Children listening today can find music, not melodrama. But music listening presents fewer demands than listening to drama or prose.

Music purists may disapprove, but most pe ple us radio music as a backdrop for accomplishing other things. Should three b radio fiction for children? Perhaps its scarcity speaks the truth all too loudly: if radio stories were appealing or important enough, they would persist. Why would youngsters with ready access to illustrated tales choose strictly aural ones? With television setting children's standards for fiction, pictures must seem mission more by accident than design. Telling stories on

radio may also seem old fashioned to the young. Commercial radio broadcasters voice skepticism about the economic viability of programming for children in general. Audience rating services ignore the under-twelve listener. But maybe the radio broadcasters' doubts are unwarranted. According to one knowledgeable source, 'There's every indication from parents and kinds that there's a real audience for children's radio, But we've given it a real chance. You need a block of good programs and lots of money for promotion. Today's compact radios and earphones allow for such intimate listening. Whether amid a crowded street or under the covers in bed, modern radio and audio cassettes might set a wonderful stage for the most personal storytelling - where children's own visions of the world can prevail.

'Listen and attend,' invites a story record narrator in her friendliest voice. But make no mistake about it: that means work. A young listener must keep up with the passing flow of words, yet has no control over their speed. And even when listening to an ideal rate of speech, sustaining attention to an unseen voice takes concentration. What is there to look at? What are your hands supposed to do? Young listeners also must make sense of what they hear and reconstruct a meaningful message in their own mind. No wonder listening to recorded prose leaves so many young children restless and bored, or asleep. Youngsters who grew up with radio must have faced the same problems; yet its stories managed to capture their attention and loyalty. The demands of story listening take their toll. Researchers comparing different versions of the same story find children neither remember nor understand radio fiction as well as they do that in illustrated books or on television. Young listeners include more wrong information retelling a radio story and answer fewer factual questions correctly.

Having to rely on words alone limits children's story understanding. With no additional cues from pictures, sound effects, or music, children may be unable to decipher new words or complex sentences. Admittedly, hearing words in context does offer clues to their meaning. To astute young listeners, the sentence: 'Then filled the doll's bowl with pounded yams' may suggest yams are something to eat. But this clue is available in other media versions as well. Hearing words with expression also may help explain them. In the 'yams' case, however, even trying to make them sound delicious in no way reveals their identity. The more key words and phrases children miss, listening, the less their grasp of and interest in the text.

Oral stories also present problems when children reason beyond the given text. To understand a story in any medium requires making all kinds of inferences, from the grammatical to the logical. A well-organized story presents information where it is needed, but it is still up to the individual to infer how these words and actions are related. Only then is a narrative coherent. Such reasoning begins right from the opening lines, as in this example from a Grimms' fairy tale, The Fisherman and His Wife:

> There was once a poor fisherman who lived with his wife in a tiny hut by the sea. Each morning he went down to the shore and cast his net for fish. One day he pulled up a fish with gold a silver scales.

Having the first two sentences in mind, we readily deduce in the third who pulled up the fish, how, when, and where. Young children make relatively easy connections like this too. But the farther apart two story events, the more difficult it becomes for children to relate them, such as connecting a character's motive with the behavior it causes.

Radio calls on audiences to contribute more inferences. Listeners do more work filling in between the lines than most other story audiences. Even the simple reasoning above is eliminated for young TV viewers, who actually see the fisherman retrieve the fish on screen. The television picture delivers story evidence which otherwise must be inferred. More spare story media like radio also leave fewer clues on which to base inferences. Not always is the relevant information right there in the text, as in the preceding example. This becomes especially evident when children use inferences to elaborate their knowledge of story characters, actions and settings. What kind of guy is this fisherman, anyway?

Young listeners import more outside information than viewers to answer this kind of question. Visualizing the fisherman, radio listeners know at this point only that he is poor. At least that helps some nine-and ten-year-olds with costuming; they proceed to picture him in patches and ragged clothes. But there are so many details of physical appearance to account for. How old is he, for instance? Young viewers can refer to such telltale signs of age as hair color, whiskers and wrinkles. Without pictures, specific voice cues, or text, young listeners seek evidence elsewhere: they bring to bear personal experience and world knowledge, such as it is. But children's experience is limited, and it sometimes leads them to draw idiosyncratic or stereotyped conclusions from their listening. Thus we find errors in children's comprehension of radio stories.

Bottom-line story listening

What young listeners do remember from oral stories, demanding though they may be, reflects an uncanny sense of narrative form. Children retelling an oral story, one short and simple enough to be within their grasp, intuitively include the most important information and

omit many minor details. First graders typically mention at least one main character, an even that initiaties the story, and the consequence that finally results. Other content, such as characters' reactions and attempts to reach a goal, gets added as the audience matures.

Here is what one seven-year-old boy told me, recapitulating the African folktale *A Story a Story* about the origin of stories on earth:

The guy wanted to have the stories.

And then the king in the sky said he has to pay and get all like a tiger and bees and a fairy that-no-man-has-seen.

So he got'em. Then he spinned a web and brought them back to the king of the sky.

Then he got all the stories and brought them back to his village.

This is bottom-line story recall. With great economy of means, he volunteered just enough information to recreate the bare bones of the story.

Where do children get their narrative savvy? For one thing, stories identify themselves by conforming to a certain starchier or plan: a text needs a setting, beginning, development and resolution to qualify as a story. Children construct an analogous mental map of story structure based on their exposure to literature. They come to expect fictional events to proceed in a prescribed manner as well - the hero will succeed in his mission, the villain will ultimately fail. The younger children are, the stronger their preference for stories organized that way.

Children also learn about fiction from firsthand experience. Cause and effect relationships, essential to fiction, are tested all the time in real life; if I misbehave and pull my sister's hair, will I be caught and punished?

Children use what they understand about the world to evaluate the credibility of story characters, settings and events.

Young listeners' mental schemes for narratives help them organize a story as they hear it. The more a story conforms to this ideal or at least expected form, the better children remember it. When elementary school students hear a story out of order, they tend in their own accounts to reorganize events in standard sequence. Children will try and make narrative sense out of scrambled picture sequences too. Children's as well as adults' memory for stories simply gravitates towards the course of events to which they are accustomed.

Robust as young children's basic story scheme is, it is something they don't consciously apply. Second graders perform poorly, at any rate, when asked to sort out story content in terms of its relative importance. Later, when children are formally taught the rigors of story form, they discover what, in a nascent sense, they already know.

The sound of language
The memorability of oral stories does not depend solely on reliable structure or even on meaningful content. Another secret of oral literature's longevity, the one most germane to radio, is the way that it sounds in our ears. Traditional storytellers, film, television and theater, have in common with radio the power to impart sonic beauty to their verbal message. But sound matters more to radio than to any audiovisual medium. Most ephemeral of all, radio storytellers cannot speak to their audience in person or been in the flesh; only the relayed sound of their voices can be heard.

Spoken stories exploit the sound of language several ways. Among the most basic phonetic features oral

literature employs is repetition. Alliteration, rhyme and refrain all depend on sound repetition for their effect, whether at the level of letter, word or phrase. Meter and rhythm are based on repeated patterns of sound and syntax. It is raining' merely delivers weather information, whereas 'It is raining, raining, raining' is a more emphatic, rhythmic and expressive message. Preference also may be given to words whose sounds suggest their meaning: 'callous' characterizes a hardened person better than the softer sounding 'insensitive.' Onomatopoeic words resemble even more closely the sound of their referents - try 'splash,' 'bang,' or the more delicate 'plop.' Appropriate use of language's sensuous qualities elevates a story text from the prosaic to the poetic.

Children tend to remember poetic language in stories they hear. The very words and phrases that use sound to advantage - despite their marginal importance to the plot - appear often in young listeners' accounts.

The sound of story language has greater impact on children when it is not competing with moving pictures. Radio narration elicits better recall of poetic or flavorful vocabulary than does a cartoon version of the same text; compared to viewers, school age listeners correctly identify more of a story's onomatopoeic sounds, and elaborative phrases. Listeners more often refer to characters by their formal names, 'Ananse the spider man,' whereas viewers make vague references to 'the man' or just 'him.' Even preschoolers, notorius for their brief story descriptions, include more specific wording after a strictly auditory delivery; listeners report: 'The whale ate every fish in the sea,' whereas viewers simply say, 'He ate all the fish.' Once children see stories on television or film, as we later discuss, pictures become more important than words. How aware children are of a story's use of words is debatable, however.

On one hand, research indicates children pay more attention to what happens in a story than how it is told. Preschoolers will complete in identical fashion stories of similar content but opposing moods: whether the protagonist was thrown overboard in a storm or jumped overboard for a swim in the sun, he is invariably returned to his boat and sent home to bed. Elementary school children asked to pick a consistent continuation for a story or poem will base their choices more on verbal content than on style. After hearing this opening passage:

> How pleasant to know Mr. Peer!
>
> Who has written such volumes of stuff!
>
> Some think him ill-tempered and queer,
>
> But a few think him pleasant enough

more students follow up with a verse further describing Mr Peer than one using a consistent thyme pattern.

> (a) Here's a man who's very nice indeed,
>
> I'd like to have a book of his to read.
>
> Sometimes, it's true, he starts to lose his temper.
>
> Yet Mr Peer is pleasant each November.
>
> (b) She sits in a beautiful parlor,
>
> With hundreds of tiles on the wall;
>
> She drinks a great deal of Marsala,
>
> But never gets tipsy at all.

On the other hand, children's language sensitivity may not be tapped by such rigorous tasks. For instance, young listeners will sometimes continue a story with phrases they like the sound of, regardless of whether they agree in style with the previous text. Perhaps their sense of story language, like that of its structure, is only intuitive. In that case, young listeners reveal their appreciation of

poetic language by repeating its rhymes and refrains, and by asking to hear again stories that use such vocabulary.

Listening to radio drama

Listening involves attending to so much more than language. Yet we routinely equate listening comprehension with knowledge of word meanings and take for granted the significance to children of sounds - shrieks, screeches, crashes, creakings, weepings, whispers, roars, rustlings, tweets, tinkles, slaps and sighs. Only in music class are children credited with having an ear for more than semantics. Radio drama takes advantage of sound quality in several ways, the most basic of which is having each character speak his or her own part.

Voice: The mental image we conjure up listening to a radio voice can be so vivid that actually seeing the person behind the microphone is surprising or downright disappointing. An actor's tone of voice lends shades of meaning typically lost in print. It helps establish a character's sex, age, mood, even physical stature. Speech accent and dialect suggest social class and nationality. A radio character's voice carries critical dramatic weight; a speaker silent too long is forgotten.

Children rely on the way people's voices sound to interpret an audio drama. Elementary school students will use characters' accents to establish the setting for a radio episode: 'I think the story happened in England because of the way they talk.' Accent, more than any other clue, helped them, correctly infer this drama's location. Nine and ten-year-olds will base a hero's size on his voice: 'I think he's small,' ventured one boy, 'because of the way he talks - he has a small voice'. I have even heard fifth graders determine a character's physical state from his breathing: 'Owl was tired of flying, he was taking deep breath.' Children's attention to voice is

scattered throughout our media research at Harvard. This is suggestive evidence, however.

But the impact voices have on children is also common knowledge. Infants respond differently to angry shouts than to soothing whispers before they know what the respective words mean: to which remark will an infant react more cheerfully, 'I love you' spoken in a loud gruff voice or 'I hate you' said in a soft caressing tone? Toddlers comply less often to a command delivered as a thin, hesitant plea. Without dramatic coaching, adults adjust their voices to make certain impressions on children. Among radio actors, achieving such effects is a profession.

Sound effects Cockadoodledoo! A single sound can bring an entire scene to mind if it is charged with unmistakable associations. Sound effects are an integral part of radio drama production. One producer explains:

> 'Door closes' looks simple enough on the page. But how is the door to be closed? Is the character striding out of the room in a fury? If so the door needs to be banged. Or is the creeping out? If so it must be closed quietly and carefully. And how soon after the line should we hear the door? Points like this go to the heart of a play's credibility.

A radio producer's careful handling of sound is not lost on children. In one Harvard study, children ages eight through twelve identified sound effects compiled on audiotape. Many subtle sound qualities emerged in their descriptions. Hearing a door open and close, then footsteps growing fainter, one third grader said: 'Someone's slamming a door and walking away inside a hall.' Notice her attention to how the door was closed, to the pace and direction of footsteps, even to the acoustical background. Children associate sound effects with characters' actions, props and surroundings. Listening to

the radio episode of Treasure Island, youngsters inferred a wintry scene 'because you could hear the wind blow,' knew the captain was in a crowded tavern 'because of the glasses and people talking in the background,' and that he paid for his drink in coins 'because you could hear them clinking.' Sound effects provide children with aural images of story content; omitting them is like removing a radio story's illustration. Children this age also can judge whether a given sound belongs in a story. They sorted out among the sound effects on tape which ones were plausible and which inappropriate to include in this Treasure Island broadcast: yes, horse hoofbeats belonged; no, car traffic did not.

The younger children are likely, and the more limited their vocabulary the more likely they are, to depend on sounds to follow an aural narrative - with one obvious but critical caveat. Younger children's repertoire of familiar sounds is more limited as well. Sound effects must be within listeners' experience to be effective. A child must have heard a sound before and be able to recognize it without seeing its source; for example, the identity of an old wheelbarrow rattling down the road went undetected among this youthful urban audience. Interpreting a busy soundtrack is like an informative mystery game, providing the clues are meaningful to the players listening.

Music Even babies respond to the moods music evokes. The calming effect on infants of softly sung lullabies is familiar to parents worldwide. Six-month-olds can recognize simple melodies and rhythms. By age eight or nine, children have the musical ability of untrained adults. No wonder then, that eight- to twelve-year-olds interpreted music in the Treasure Island broadcast with such sensitive ears. Most children described as happy an upbeat sea chanty, for example, whereas an eerie synthesizer passage sounded spooky and scary. No one

confused the two effects. Music offered older children clues to story setting as well; a sailor song at one point suggested pilgrims, England, and the sea. Listeners discounted the non-Western sound of a percussive African rhythm as unsuitable for this story.

What makes music so expressive for children? First there is the distinctive way a piece of music sounds. Music is composed of several elements: pitch, melody, modality, rhythm, harmony, dynamics, tempo and timber. Each musical element contributes to the overall emotional tone. According to adults judges, speeding up a piece makes it more exciting or gay; slowing it down can sadden, dignify, or calm its mood. Children perceive these differences too. Some tunes just sound more cheerful to them than others.

Children also acquire emotional responses to music. Treasure Island's music reminded many children of past experiences with similar-sounding music: the sea chanty was reminiscent of carnivals and circuses, the synthesizer of ghost stories and horror movies. As children get older, their musical associations grow more plentiful, their ears more attuned to our culture's popular musical genres and harmonies. With a flick of the radio dial most American teenagers can tell where their music loyalties lie. Audio productions can make good use of music young listeners already know and enjoy; the right opening tune can entire them into radio drama before any action takes place.

Finally, music heard in the context of radio drama has the story itself working in its favor. Although usually lacking its own subject matter, music can be composed or selected to do particular narrative work, such as defining a character or mimicking his movement. Which instrument sounds more like a fat person's footsteps, as tuba or a flute? Think of Prokofiev's Peter and the Wolf.

The specific settings, characters and actions a story supplies must help children appreciate the flavor of m accompanying music, just as music informs the accompanying verbal message. The detection dilemma Medium effects on children's story learning often elude our notice. Younger listener's responsiveness to sounds is a perfect example.

The problem rest in part with audience perception. Background music, especially when continuous, often influences listener's feeling or ideas about a story without their realizing it. This lack of awareness is frequently the desired outcome. Music, sounds effects, acoustic background, even internals of silence, are expected to contribute unobtrusively to a radio drama's overall impact. The effects of such auditory features are even more subtle for young children, who know little about their production. Nor are children trained to base story inferences on nonverbal sound clues. We have rarely heard children mention music retelling a story, even when they know its songs by heart. Sound-inclusive story listening and reporting are not encouraged or even considered in most homes and schools, where only the verbal message counts. What children know about a story from its sounds is like a well-kept secret in which children use listening skills that may not know they possess. Gathering information from sound effects, voice and music enhances story listening so much, it deserves to be acknowledged and cultivated. Asking more direct questions, playing games of recognizing or naming music, and matching music to words, pictures, or other sounds, are several ways to help children savor what their listening tells them.,

Listening and reading
Listening to stories an being able to read are related. In many studies, early readers are reported to have heard

books read aloud regularly when they were preschoolers. Children's comprehension of spoken language and of written prose also are related; children who understand radio stories better have higher standardized reading scores. Why is learning to read associated with listening to literature?

Listening to language exercises mental skills also needed to read. In both activities, a child must concentrate on the orderly flow of language, identify words, interpret them in grammatical context, and remember their meaning. Such basic abilities help listener and reader alike when it comes to following a story or extracting its main points. If anything , listening tends to bias children's learning toward the gist or essential message of a story, whereas reading leads to batter memory for verbatim derails. There is an added advantage in listening to literary language; because it follows more formal rules of grammar an vocabulary than ordinary conversation, the word patterns children hear listening to fiction approximate those they must deal with when reading.

The younger the child, and the less skilled in reading, the greater the potential payoff from prose listening. But what benefit accrues to listeners once they are fluent readers? Perhaps skilled readers proceeding at their own pace even understand more from a text than do listeners. Speech detracts from a story's effectiveness. Young children have definite preferences for speaking rate and have been found to favor slightly faster speech than older children and adults. In fact, listening an reading skills usually even out with age. College students summarize stories equally well after listening or reading. Admittedly, listening to stories is more luxury than skill developer among able readers, but I recommended making it a luxury you consider necessary.

Listening to stories also expands children's literary universe and may increase their incentive to read. Young listeners can be introduced to literature far beyond their reading level: children entering first grade understand more words than they will learn to red in the first grade understand more words than they will learn to read in the first five years of school. Prior exposure to a tale on record or radio will motivate some children to try reading the book. Audio productions that bring to life worthly characters and situations can stay with a child for life. They did for at least one Broadway playwright:

> I listened to the radio. Shows like 'The Green Hornet' and 'The Lone Ranger' and 'Let's Pretend' appealed to the imagination. I had to make a theater in my head for those shows. I made a little stage for the Metropolitan Opera broadcasts every Saturday. I had little figures of Rigoletto and Aida. I'd move the scenery. To me, that was more real than life. I spent a great deal of time in my room with the door closed-but happy.

Few adults can point so clearly to an early media experience as a source of inspiration for later professional success. And time spent with the unobtrusive radio may be especially elusive to memory. But radio and audio permit a very personal response to storytelling which should not be neglected by children, who are just learning how to listen.

Hands on

Encourage children to listen to stories. It will help them appreciate not only language and literature, but the myriad of sounds that surround them.

What to listen to

Younger children When selecting audio fiction for children, consider both subject matter and production quality. The younger the child, the more important it is to find stories

that make ample use of character voices, music and other sounds that help convey narrative meaning. The more well-placed sound cues the better. Not that a six-year -old should never hear prose read. But they will better understand-and perhaps sit still longer for- the fully dramatized story that narration. Remember too that the sound of words has more immediate impact than their meaning. That is why poems, songs, and nursery rhymes make such good listening for young children.

Older children School age listeners who are proficient with language can get more out of highly worded stories. They may especially enjoy language that plays with word sound and meaning, such as tongue twisters, riddles and homonyms. Once we master any symbol system, language being just one, it is fun to experiment with and test its limits.

Familiarity Children's listening is effected by familiarity with a story. It is easier to listen to a story you already know. Then, if you become distracted during the telling, you can more readily retrieve the story's thread and reconstruct the missing piece. Second time listeners are being reminded of a narrative, not first having to learning it. On the other hand, children who hear a story they have already seen on TV, in a movie, or in print, lose the opportunity to picture it first themselves.

When it comes to audio, familiarity with a story refers not only to the text. but to voices, music and other sounds. Hearing stories told by people children know and like adds to their appeal. Tape record yourself reading stories. Children may want to participate in the taping by playing the part of a character or making sound effects.

When, Where, and how to listen

Locating conducive conditions for story listening is

winning half the battle. Consider children's schedules in light of what you know about story listening that it demands concentration, that there is nothing to look at, that other sounds will compete for their attention. Sorry listening suggests quite times and places where children's movement is already restricted . Times spent traveling in the car, for instance, offers ripe occasions for bringing along a battery-powered tape recorder and a few tapes. How about listening to adventures in far-off places in route the supermarket? Passengers can listen together or a child can use earphones and listen alone. Listening to stories also can be a refreshing alternative to watching TV for children home sick in bed. The bathtub makes ideal terrain in which to safely heed the call of sea adventures. A little nook of cranny in the classroom can be outfitted for listening as well.

Occupying eyes and hands is part of the challenge facing listeners. The easiest solution is to listen in the dark. Spooky stories are the best, although children may prefer bearing them with other people around. Once lights are on, however, young listeners may bot be content to just sit and gaze off into space. Another approach is to make materials available for youngsters to look at and handle during a broadcast or recording. They may be related to the narrative, like the storybooks that often accompany records and tapes. These booklets can improve listening comprehension by offering a printed or picture version of the story.

7

Social Functions of Press

As the libertarian philosophy of freedom developed in England and America, the press became accountable for performing at least six social functions. In brief, its six assigned jobs are these: (a) enlightening the public, (b) servicing the political system, (c) safe-guarding personal liberties, (d) making a profit, (e) servicing the economic system, and (f) providing entertainment. It is easy to see that some of these functions arose naturally from our ideas of freedom of speech. The traditional Anglo-American theory of freedom of the press rests on a belief that man has certain inalienable natural rights, one of which is the right to free expression. It assumes that man is disposed to seek truth and will be guided by it. Using his reason, man can find truth if he has free access to ideas and information. For the theory also puts strong faith in what has been called the "self-righting process," the unfettered clash of ideas and information in the free and open market, which ultimately results in the emergence of truth.

As men find truth in the free play of ideas, social change results from conversion instead of from revolution. The theory makes virtually all ideas welcome. If they are true, men will embrace them; if they are false, men will reject them. More probably, however, men will find some truth amidst falsehood, some falsehood amidst truth, because truth and falsehood rarely appear in

simple shades of black and white. Prepublication censorship, under the theory, is abhorrent. In the long run, suppression is effectual; for sooner or later a suppressed idea will make itself known. Meanwhile, however, suppression may land a fictitious validity to invalid ideas. Furthermore, the theory recognizes that no person or group of persons is wise enough to distinguish between valid and invalid ideas before they have been put to the test of the market. Even traffickers in lies and distortions must be free to have their say. There is no need to fear them; other men will find it profitable to expose them so that in the long run lies and distortion will be shown up for what they are. As fighters against tyranny traditionally regarded the government as the chief foe of liberty, the Anglo-American concept of press freedom came to be predominantly one of negative liberty. Primarily, it emphasizes freedom from government intervention.

But the theory does not regard press freedom as absolute. The theory sanctions certain minimal restraints. For example, it sanctions postpublication libel laws and laws regulating obscenity. More recently the "clear and present danger" doctrine, first expressed by Justice Holmes in 1919, has been generally sanctioned. This doctrine holds that free speech may be abridged when the words in question are used "in such circumstances and are of such a nature as to create a clear and present danger that they will bring about the substantive evils that Congress has a right to prevent." Wartime limitations on press freedom, too, have been justified. The protection of the Constitution has been held to be less in wartime than in peacetime because "the character of every act depends upon the circumstances in which it is done." So, somewhat simplified, runs the traditional Anglo-American theory of freedom of the press. It is a theory evolved by scores of philosophers, statesmen,

jurists, and practitioners. If only a few names are usually associated with it-those of John Milton, Thomas Jefferson, and John Stuart Mill, for example-it is because those men best caught the spirit of their times or overshadowed other men who expressed the same ideas. As this theory of press freedom developed, the press came to be held responsible for performing certain social functions.

Man can explore at firsthand but a tiny fraction of the world of which he is a part. To know and understand the world, man must depend largely on the printed word. Not only can the press furnish man with the information he needs to formulate his own ideas but it can also stimulate him by offering him the ideas of others. For centuries, the press has been regarded as an important carrier of information and ideas. Running through John Milton's Areopagitica of 1644 is the theme that a free press is indispensable in the quest for truth. As Milton put it, "Where there is much desire to learn, there of necessity will be much arguing, much writing, many opinions; for opinion in good men is but knowledge in the making."

Although Thomas Jefferson wrote no unified work on the press, his scattered writings time and again touch upon the importance of a free press to public enlightenment. In a letter to M. Coray in 1823, he remarked: "The press is the best instrument for enlightening the mind of man, and improving him as a rational, normal, and social being." By implication, John Stuart Mill, too, recognized the role of the press in enlightening the public; for much of his essay, On Liberty, dwelt on the necessity of free discussion for the individual's self-development and the mental well-being of mankind. Nor were these moulders of traditional theory the only ones to assign the press a public enlightenment function.

More recent writers, including some who would modify existing theory-as, for example, the Hutchins Commission on Freedom of the Press-have made much of the importance of the press in informing and educating the citizenry.

Closely allied with the public enlightenment function of the press is the second function of servicing the political system. The very nature of democratic government imposes a heavy responsibility on the press, which is granted a privileged position under the Constitution. As Carl Becker once remarked, "Democratic government rests on the assumption that the people are capable of governing themselves better than any one or a few can do it for them."

If the citizens are to rule themselves wisely, they must be aware of the issues and problems at stake and must have access to views and information on which to base sound decisions. Therefore, the press must serve as an engine of democracy, as a transmission belt between the people and their elected representatives. The very success of government may depend in large measure on the extent to which the press services the political system and the extent to which the people make wise use of the press.

Not far removed from the two foregoing functions of the press is the third-safeguarding personal liberties. Individual liberty is the core of democracy, which is founded on the assumption that the individual citizen \knows what is best for himself. John Stuart Mill expressed the happy idea that only the free individual can develop his capabilities to the fullest; as the individual develops, Mill believed, society as a whole benefits. Although infringements on an individual's freedom may come from many sources, the government has long been a potential enemy of liberty

As the theory of press freedom evolved, the press came to be assigned the task of watchdog, to sound the alarm whenever personal liberties are infringed. Jefferson reiterated the importance of the press in safeguarding democracy by exposing infringements on personal liberties. "If a nation expects to be ignorant and free, in a state of civilization, it expects what never was and never will be," he wrote in 1816. "The functionaries of every government have propensities to command at will the liberty and property of their constituents... Where the press is free, and every man able to read, all is safe." And earlier, in 1792, he wrote to George Washington: "No government ought to be without censors; and where the press is free, no one ever will be. If vircuous, it need not fear the fair operation of attack and defense."

The traditional concept of press freedom lends cogent justification to a fourth function of the press-making a profit through proper use of its freedom. The theory holds that only a free press, operating under a system of private enterprise, can fulfil the tasks of enlightening the public, servicing the political system, and safeguarding personal liberties. The syllogism behind that assumption runs somewhat as follows: Only a free press can serve the cause of truth. A press beholden to the government or to any special interest group cannot be free, because it will inevitably be subjected to environmental and financial pressures.

Therefore, to be free to present news and views without fear or favor, the press must be a self-sufficient business enterprise. Carried a step further, this line of reasoning has been used to justify large communications enterprises. The argument is that a large, prosperous medium is better able to withstand pressures than a small, marginal one. The entry of the government into the communications field, according to traditional theory, is per se bad.

For one thing, governmental media would no doubt be more interested in perpetuating the party in power than in truth. For another thing, a subsidized governmental press would threaten the economic sufficiency of a private enterprise press. With no need to show a profit, such a press would have an unfair economic advantage over the regular commercial press.

In a sense, this correlation of press independence with profit-making has a strong kindship to Adam Smith's idea in classical economics that as each individual works for his own gain, he serves the welfare of the community. The necessity of showing a profit, the theory runs, assures us of a press closely attuned to the needs and wants of the community. George Sokolsky, columnist for the King Features Syndicate, expressed this view in the Don R. Mellett Lecture at Syracuse University in May, 1947.

The battle for circulation, Sokolsky said, is the battle for truth. Although a few publishers may find it profitable to pander to the lowest taste and to deal in falsehood, a far greater number of publishers will find it even more profitable to deal in truth and good taste. As readers vote with their coins and subscriptions, the publications they do not want wither and die from lack of financial support.

The publications they do want will grow financially strong and flourish. By serving his own personal interest in making a profit, then, the publisher almost automatically gives the community the sort of newspaper it wants and needs. The system is the essence of democracy, according to some spokesmen for the theory; for, by expressing its pleasure or displeasure with coins as ballots, the public gets the sort of newspapers, magazines, and books it wants. Critics of the press have taken sharp issue with this aspect of press theory. By a

sort of Gresham's Law of Journalism, they say, bad publications tend to drive out the good. They summon a number of examples in evidence. Boston, for example, has long been known for the low quality of its newspapers; and the best paper in the city, the Christian Science Monitor, is not even a home-town paper but a national one. They call the roll of the fallen giants of New York-the World, for example, and the Sun-and they point out that the huge circulation of the News is more than quadruple that of the Times. A press system devoted to the irresponsible pursuit of profit, critics say, results not in publications serving the wants and needs of the community but in publications ill-equipped to meet the demands of complex contemporary society. It results in publications aimed at the lowest level of public taste. It results in publications for which the sensational is more important than the significant.

Related to the profit-making function is a fifth task of the press, one which emerged with the development of modern advertising, that of servicing the economic system. Long before advertising assumed the importance it has today, the press fulfilled this task to some extent. In Colonial America, newspapers filled their columns with information about commerce and shipping, material important to an economy in which foreign trade and shipping bulked large. And newspapers devoted to commerce continued to flourish, even after the penny press of the 1830's made its pitch for the masses with human-interest copy.

But it was with the rise of a complex system of mass production and mass distribution that the contribution of the press to the national economy became of major importance. Today a task of the press is to bring together, through advertising, the buyers and sellers of goods and services In performing that seemingly simple task, the press, according to some scholars, has helped to promote

a dynamic, expanding economy. Such is Borden's general conclusion in The Economic Effects of Advertising. Sandage has credited advertising with contributing to a high level of consumption, with helping to allocate resources, with stimulating product variety, and with helping to bring about prices favorable to the consumer. Although critics have charged advertising with fostering wastefulness, monopoly, and other evils, the press as an advertising medium certainly has contributed to a high material standard of living. By editorial fare as well as by advertising, the press oils the wheels of commerce. For instance, approximately two thousands trade, technical, and business publications in the United States are important to manufacturers, wholesalers, retailers, and others engaged in commerce. They keep their specialized readers abreast of new developments in the fields they cover, and they carry news on which many of the decisions of business are based.

Almost from the time that Caxton introduced printing to England, the press has devoted a part of its output to entertainment. However moralizing may have been their tone, the broadside ballads which flourished in Britain for more than three centuries, were intended less for edification than for amusement. Other offerings-pamphlets and books-were also intended to amuse the reader. Early newspapers in England and America were primarily informational, but they, too, ran human-interest copy from time to time. As the press tapped mass audiences, there seems to have been an increase in the proportion of material frankly designed to afford amusement, entertainment, or escape.

Those, then, are the six functions ascribed to the press. Historically, some of them are of longer standing than others. Public enlightenment is one of the oldest functions; servicing the economic system is a relatively recent addition. As has been shown, some of the

functions are inherent in the theory of political freedom. The responsibilities of the press for enlightening the public, for servicing the political system, and for safeguarding personal liberties are intimately identified with the Anglo-American concept of freedom of the press. At least one of the functions, however, is not inherent in the theory. The role of the press in servicing the economic system was recognized only after the development of modern advertising. In practice, of course, some of the functions may conflict. Entertainment, for example, may clash with public enlightenment. A magazine publisher may wish to explore seriously the nature of the struggle between East and West; most readers may want slick fiction and features that do not strain their intellect.

The book publisher may wish to publish a philosophical work; the book-buying public may prefer to spend its dollars on historical novels with bosomy heroines. So, at bottom, the function most likely to collide with others is making a profit. The magazine publisher runs fiction because it is more profitable than articles analyzing the struggle between East and West. The book publisher brings out historical novels because bosomy heroines are more profitable than philosophical discussions. One must remember that a given medium need not carry out all six functions by itself. Newspapers, as a medium, need not perform all six tasks.

It is enough if newspapers, in conjunction with the other media, do the job. Nor does every publication have to carry out all of the functions all the time. A given publication may do only two or three of the tasks and still be making a genuine public contribution. The six functions are those of the press as a whole, working in concert. What should be the proper balance among the six functions in the press as a whole? The answer involves subject judgments which will depend on the

importance one attaches to each of the six tasks and what he expects from a press system in a democratic society. Nonetheless, certain characteristics of the United States press system make it difficult for the press to strike what some persons regard as a proper balance among the six functions. The press has performed some of these functions admirably. It has done a good job of profit-making, and by doing so it has remained free from its traditionally feared foe, government. It has done a good job of servicing the economic system.

Despite the faults one can find with advertising, there can be no doubt that the press has contributed to a high material standard of living by bringing together the buyers and sellers of goods and services. It has done a good job of providing entertainment, however much the critics may quarrel with the cultural level of that entertainment. If anything, the press has performed the entertainment function so well that it has neglected some of its other tasks. There are other functions which, some critics believe, the press has not performed as adequately. In its task of enlightening the public, they say, the press has fallen far short of the requirements of contemporary society. Aiming at the lowest common denominator of its mass audience, the press gives superficial treatment to significant issues and events, too often, its emphasis is on the what rather than on the why.

Contributing to this evil, they add, is the insistence of the press on a curious sort of objectively-a spurious objectivity which results in half-truths, incompleteness, incomprehensibility. In adhering to objective reporting, newspapers try to present both sides of a story, but in doing so, say the critics, they do not bother to evaluate for the reader the trustworthiness of conflicting sources, not do they supply the perspective essential to a complete understanding of the situation

Instead of assuming that two half-truths make a truth, the critics say, the press should put facts into a context that gives them meaning. Moreover, the critics continue, the press does not give adequate attention to minority views; and even when it does give space to minorities, it invariably emphasizes the humorous, the ludicrous, the insignificant aspects of the minority viewpoint. Nor is that all. Because of design or because of design of because of the way the system works, the press often biases and distorts informative material. The foregoing summary by no means completes the inventory of charges against the press as public enlightener, but it does indicate the general nature of contemporary criticism. In its job of servicing the political system, too, some critics think, the press has fallen down. Its shortcomings in this regard are essentially the same as those in its attempts to enlighten the public.

The press also has been remiss in safeguarding personal liberties, some critics say. To be sure, the press has championed its own freedom and has been quick to protect itself against potential threats to it. It has been less ready, however, to expose and denounce infringements on the liberty of others. Indeed, by some of its excesses, some critics think, the press has violated the rights of some citizens. It has invaded their privacy without just cause; it has destroyed their reputations by publishing malicious gossip and by headlining irresponsible charges made by politicians using Congressional immunity for their own self-aggrandizement. The critics' charges have some validity. However, one should remember that their generalizations do not apply with equal force to all media or to all units in a given medium. Perhaps the criticisms hold most strongly for newspapers and the mass circulation magazines, least strongly for small circulation magazines and books. And within each medium, there are

publications which carry out their functions superbly.
The newspaper field is brightened by such conscientious
and responsible organs as the New York Times and the
St.Louis Post Dispatch, to name but two. In their own
ways, such magazines as Harper's, the New Yorker, and
others have performed with exemplary integrity. Nearly
every book publisher can name a number of books he has
published without expectation of profit in order to give a
deserving author a hearing.

What hinders the press in carrying out its functions?
There are many things. There are limitations imposed by
the communication process itself-by the way in which we
send and receive spoken and written messages. There are
limitations imposed by the nature of the media. In this
chapter, however, we will consider but two major
problems-concentration of ownership of the media, and
the commercial basis of the press system.

The concentration of ownership of the press-which
has resulted from, among other things, technological
advances and the demands by readers for improved
service-has alarmed many observes. In the daily
newspapers field, the number of papers has gone steadily
downward as circulations have steadily mounted. As the
number of dailies has diminished, more and more cities
have been left without competing newspapers. Nixon has
thoroughly documented this situation.

The number of English-language dailies of general
circulation reached its peak-2,600-in 1909, according to
Nixon. Since then, the number has gone steadily
downward as a result of suspensions, mergers, and
changes from daily to less frequent publication. Between
the two world wars-between 1918 and 1944-the total
number of all dailies declined 19.4 per cent. Yet, in the
same period, the total circulation of daily newspapers
increased 60.4 per cent.

The following figures indicate the trend toward fewer general circulation English-language newspapers with increased circulations:

Number of Daily Newspapers and Their Circulation
1930 to 1951

Year	Total Dailies	Total Circulation
1930	1,942	39,589,172
1935	1,950	38,155,540
1940	1,878	41,131,611
1945	1,749	48,384,188
1950	1,772	53,829,072
1951	1,773	54,017,938

A glance at these figures shows that fewer papers are accounting for larger circulations. And as the number of dailies has declined, so has the number of cities with competing papers. Cities without competing papers rose in number from 1,114 in 1930 to 1,277 in 1945. Of all United States cities with dailies in 1945, 91.6 per cent did not have competing papers.

Wrote Nixon in 1945: "Daily news-paper competition, certainly in the full economic meaning of the word, has been eliminated from all but 117 American cities. Ten entire states have no local competition whatsoever." The growth of newspaper chains, especially in view of the declining number of newspapers, has also caused observers some concern. The national chains had their greatest growth after the first world war. Today they have been largely supplanted by state and regional chains. Nevertheless, the number of dailies affiliated with chains has been on the increase, as the following figures testify.

Control of Daily Newspapers by Newspaper Chains, 1929 to 1949

Year number Dailies per	Number	Number of Chains	Percent of Chain Dailies of Dailies	Average Total number Chain
1929	52	267	13.7	5.0
1935	63	328	16.8	5.1
1939	77	364	18.8	4.7
1945	76	370	21.2	4.8
1949	70	386	21.6	5.5

Cross-channel ownership has intensified the seriousness of concentration, some observes believe. And, indeed, a trend of the last twenty-odd years has been for chains linking radio stations and newspapers under the same ownership to replace chains consisting entirely of newspapers. The magazine industry, too, is characterized by a few giants with mammoth circulations. Despite their dominance, however, the industry is still highly competitive.

Although the voices of the mass-circulation leaders are loud and ubiquitous, they cannot entirely shout down the many small circulation magazines which, in the aggregate, offer a wide range of editorial fare. And despite the financial hazards endemic to magazine publishing, the fields is still open to the small publisher who does not try to compete with the giants but seeks to publish for a relatively small circle of like-minded readers. No published study has ever dealt with the amount of concentration in the magazine industry, which has oddly escaped the attention of scholars. Even much of the available data about the industry must be regarded warily for a number of reasons. For one thing, different persons use the term magazine in different ways. For another, there is no central clearinghouse for data, although there are agencies which collect certain types of information.

The United States Census dos collect some types of data, but they lack comparability and are often unreliable. Yet one can get some idea of the amount of concentration in several ways. One way is to look at the relative size of magazine publishing establishments. The 2,166 periodical establishments in the United States in 1947 employed 68,823 persons, according to census reports. But just three establishments of the 2,166 employed about 17 per cent of the total-11,701 workers. And just ten of the 2,166 establishments employed nearly one-third of the total number of workers.

A second way of getting an idea of the amount of concentration is to look at circulation figures. To do so, though, one must necessarily use figures from various sources, figures often not strictly comparable. The 4,610 periodicals in the United States in 1947 had an aggregate per issue circulation of 384,628,482, according to census figures. Other sources show that 33 magazines, each with a circulation of a million or more, accounted for more than one-fifth of that aggregate circulation. At least 27 of those 33 magazines were published by companies having two or more publications. Since magazines depend heavily on the post office for distribution, the use of the mails also gives some clues to the dominance of magazine leaders.

Reporting on the use of postal services in 1949, a Senate committee said that 18 of the largest magazines and two of the largest newspapers accounted for 43.6 per cent of the weight and 43.2 per cent of the revenue in second class, the postal class which gives preferential rates to publishers of bona fide periodicals. Ten companies published these 20 publications; just three corporations controlled the nine largest. Rare is the publisher who is content to publish just one magazine. Although it is scarcely feasible to determine the number of publishers who issue more than one magazine, the

author, using two standard listings of magazines, counted 68 multiple-title publishers of general-interest magazines and comic books, another 12 multiple-title publishers of farm magazines. The number of magazines issued by a single publisher ranged from two in several cases to 53 for Fawcetr, 38 for Popular, and similarly hefty numbers for several others. Since the listings were incomplete-they did not cover business and trade journals, for example-those figures are conservative.

Still another way to get an idea of the extent of concentration is to learn how advertising funds are allocated. In 1950, the 2,257 national advertisers spent some $416,898,000 on advertising in general and farm magazines. Well over half of that national total was accounted for by the gross advertising revenues of just three publishers-Crowell-Collier, Curtis, and Time, Inc-whose combined gross in 1950 was $231,380,947. And just two publications of Time, Inc-Time and Life-grossed $104,159,377, roughly one-fourth of the national total. Yet these figures should not distract attention from the fact that there are many small circulation magazines with variegated editorial policies. There are perhaps 6,500 magazines in the United States, even though the census shows considerably fewer than that. And although individual publishers and their magazines come and go, there seems to be no downward trend in either the number of publishers or the number of magazines. One reason for the relative stability of magazines numbers may be that publishers need not invest heavily in plant and equipment; they can have their printing done for them on contract.

Nor are they limited by geography as are newspaper publishers and radio station operators; they can draw their audiences from the nation as a whole. Today the odds in starting a new magazine seem to favor the established publishers, but many newcomers in recent

years have become highly successful. In fact, a good share of the current circulation leaders has sprung up since the 1920's and 1930's-among them Reader's Digest, Better Homes and Gardens, Time, Life, Look, Coronet, Woman's Day, and Seventeen. Although a handful of large publishers turns out a disproportionate share of books, the book industry is also composed of many relatively small, highly-competitive firms, a situation desirable for the free flow of ideas. In some ways the book industry is akin to the magazine industry in that the publisher is limited neither by geography nor by large investments in plant and equipment. The lack of integration in the book industry favors the existence of a sizeable number of small, competitive firms, according to Robert W. Frase, economic consultant to the American Book Publishers' Council. Frase gave this picture of the industry:

The United States book trade is in many ways an industry of the 19th century type, composed of relatively small, personally-managed, highly competitive firms, and with very little vertical integration. This situation is highly desirable so far as the end product is concerned-it maintains freedom of the press to a maximum degree. It insures publication of works which might not find a publisher if there were only a few giant integrated firms; and it is free of much of the pressure of serving a mass market with something which will offend or antagonize no one.

On the other hand, this same lack of size and integration imposes economic handicaps, especially since the competition in the communications-of-ideas industry is generally more integrated and has, moreover, a major additional source of revenue in advertising. While it is true that the giants do not monopolize the book industry, it also seems true that a small number of houses is responsible for the bulk of the books published in the

United States. Much of the information about the book industry, like that about the magazine industry, is sketchy and unreliable; but, however one reads the available figures, they do point to the important of the large publisher.

For instance, census reports for 1945 show that less than 3 per cent of the 1,080 publishers in the United States brought out more than 60 per cent of the total books sold, while 67 per cent of the publishers accounted for less than 1 per cent of the total. But the census figures inadvertently tend to exaggerate; they include many firms which cannot realistically be considered as publishers. Therefore, they are not as dependable as the data of William Miller, who estimates that the number of book publishing firms, year in and year out, averages about 250; of these, he says, some 42 account for the great bulk of the original book business.

Many of the large trade-book publishers are affiliated with reprint houses. The "big three" hard-cover reprint houses are Garden City Publishing Company, Grosset & Dunlap, and World Publishing Co. World is the only one of the three not associated with a large trade-book firm, according to Miller.

Garden City is a subsidiary of Doubleday, the largest hard-cover reprint house in the world; it issues Blue Ribbon Books, Star Books, Sun Dial Books, Permabooks, and other lines. Grosset & Dunlap was bought out in 1945 by the Book-of-the-Month Club and a group of publishing firms including Harper & Brothers, Little Brown & Company, Charles Scribner's Sons, and Random House. Some of the paper-back reprint firms are not associated with regular trade-book publishers, but the largest ones are. Simon and Schuster, for instance, has an interest in Pocket Books; Grosset & Dunlap and Curtis Publishing Company own shares in Bantam Books.

One of the largest trade-book publishers is also one of the largest operators of book clubs. Doubleday's clubs include the Literary Guild, Junior Literary Guild, the Dollar Book Club, and the Book League of America. Undeniably, then, the big publishers are important. They can most readily afford to bid for potential best-sellers and are most likely to attract the best-known authors. They are most likely to share in the economies of large press runs. And they are in the best position to advertise and promote their lists. It is not only concentration within the book, magazine, and newspaper industries that has worried observes of the press system. Accompanying such concentration has been cross-channel ownership. Many newspaper publishers operate radio and TV stations, some publish magazines, and some do both. Some magazines publishers operate TV stations, own studios for producing documentary movies, and issue original or reprint books in paper-back editions. Some book publishers also issue magazines, and at least one operates a major book club and runs a string of retail bookstores.

Moreover, there are instances of strong vertical integration. Some newspapers own paper mills. And a few magazine publishers exhibit varying degrees of integration. Curtis Publishing Company, for example, owns forests and paper mills, has its own engraving and printing plants, operates a subsidiary which conducts market surveys and statistical studies, owns agencies for soliciting subscriptions and for distributing magazines of its own and of other publishers. Complicating this whole situation is the fact that the press is controlled by a single socioeconomic class-loosely, the "business class." Earl L. Vance wrote in the Virginia Quarterly Review: While there is nothing singular about newspapers being private business, there is cause for concern about business having a monopoly on a nation's sources of information. The reason is not that business is sinister.

Monopoly of the press by any group-by labor or government no less than by business-is the one thing that freedom cannot endure. The problem of concentration has inspired a number of proposed remedies. Some writers base their remedies on the implicit conviction that bigness is necessarily badness. Ernst in his The First Freedom would improve press performance by what he calls "old fashioned, approved techniques-right down the middle of our traditional legislative paths." His recommenda-tions, in essence, include the breaking up of communications empires and the fostering of small communications enterprises.

There is some support for Ernst's point of view in the argument of MacIver in The Web of Government that too much power in the hands of any group, that every monopoly or approach to monopoly, is inimical to democracy. While recognizing the merits of large communications enterprises if they are checked by public safeguards, MacIver warms: "Of all such monopolies, the most immediately fatal to democracy is the monopoly of the media of opinion, or any approximation to it." Other writers have assailed the thesis that bigness is necessarily badness. Economist Robert A. Brady contends that Ernst's recipe of competition is outmoded; that, for all practical purposes, it has been abandoned by business, government, economists, and others; that as therapy for the ills threatening democracy it is essentially worthless.

Brady fully recognizes the evils of concentration under which the few can determine policy for the many. He says in effect that economic power perhaps cannot be separated from political power; that to gain political power, business must, among other things, manipulate the media. But he denies that large-scale activities are irresponsible with democracy; there are ways of making them compatible. In the interests of democracy, he thinks, policy control of the media must be shifted back to the

people affected by the decisions of the policy-makers. He believes that there can be such democratic participation in policy-making, but with experts to implement the policy decisions. Nixon also doubts that it is possible to return to the yesteryear of many small, diversified communications units. He remarks that the one-newspaper town is not an evil in itself; what matters is the sense of social responsibility possessed by the publisher. One poor newspaper is no worse than several poor ones, he adds; and one good newspaper is better than several poor ones. Believing that journalism is entering a new period in its history, that of "scientific direction," he suggests that the fruits of communications research may make the press more and more responsive to the wants and needs of the community. Still other writers discount the dangers of concentration. A common argument is that the nature of press competition has changed. Fortune magazine for April, 1947, reviewing the report of the Hutchins Commission on Freedom of the Press, questioned the often-made assumption that a smaller proportion of the people can express their ideas in the press today than in former times. Fortune contended that too much fuss has been made about the diminishing number of newspapers and of the increase in one-newspaper cities. Said Fortune: The trend cannot be interpreted except in the light of the development of transport, which brings out-of-town dailies to ever widening areas. It cannot be interpreted except in terms of the rise of weekly news magazines, general magazines, radio newscasting, radio forums, national hook-ups, and the nationally syndicated column. Competition has not disappeared; its form has changed.

The commercial basic of the press system

Posing perhaps even more perplexing problems than concentration is the commercial basis of the press. The problems it raisers become especially serious in view of

the high degree of ownership concentration. The situation can be simplified somewhat as follows: To remain free, the publisher must be self-supporting; to be self supporting, the publisher needs a large number of readers. If his publication does not carry advertising, he needs many readers to keep down the per unit cost. If his publication does carry advertising, he needs a large number of readers not only to keep down per unit cost but also to justify profitable advertising rates.

In either event, therefore, there is pressure upon the publisher to appeal to an ever expanding reader group. As the reader group widens, the publisher's chosen public tends to determine what he can and cannot publish. In order to attract and remain readers, the publisher will tend to give the majority what he thinks it wants and agrees with. He will tend to avoid publishing material which the majority does not agree with or has no accepted. In general, the publisher seems to accept the long-term social and cultural goals of the majority, which has seldom been credited with the origination and introduction of new ideas. At times the publisher may, of course, present or espouse short-term goals differing from those of the majority of his readers.

Klapper has suggested that the commercial sponsorship of the mass media and the resultant necessity of pleasing as many persons as possible work to resultant necessity of pleasing as many persons as possible work to perpetuate the status quo. "Pleasing the majority necessarily involves hewing to majority views," he writes. "He who espouses minority opinion automatically alienates the majority; he who would immediately enlist the crowd must voice the attitude already sanctioned by most of its members." By entertainment content, by advertising, he says, the press reaffirms these sanctioned mores.

Advertisers wish their messages to appear in media which do not offend the majority and which do not attack the system under which business operates. Publishers, to get large audiences, are chary of offending many readers. As a result of these two conditions, entertainment in the mass media strengthens existing attitudes. Popular magazine stories, researchers have found, while overtly accepting racial and religious equality, in fact perpetuate minority stereotypes, approve caste lines and, in Klapper's words, "picture a world where the highest income is reserved for white, American-born gentiles who practice the protestant ethic." Popular magazine biographies over the past half-century, one research worker found, have dealer with heroes who since birth embodied popularly sanctioned values.

Advertising plays on existing drives and values to sell products, and in doing so it reinforce them. By its nature, it has a monopoly position; "two cigarette manufactures may compete with each other," says Klapper, "but neither will ever directly criticize the other's product, and never will either allow some other advertiser to inveigh against smoking."Even casual observation shows that as the press seeks its large audiences, it resorts to the expedient of mass production techniques. The formula becomes important and is reflected in a general sameness of content and in a sameness of techniques for presenting content. Economy imposes limitations on the gathering of material. Newspapers-and to a considerably lesser degree magazines-get their material largely at stations of record.

Lippmann has observed that, since papers cannot possibly witness all of the happenings in the world, they station reporters at such points of record as courts, city halls, and so on. As papers can record only what occurs in unmistakable form, news becomes not a mirror of

social conditions but of an aspect that has obtruded itself. Almost inevitably, in its quest for the large audience, the press in its content aims at the lowest common denominator. Content is thinned; drama, sensation, the unusual are exploited. Cultural minorities become "disenfranchised"; for it is often unprofitable for the publisher to cultivate certain reader groups because of their small numbers, their low purchasing power, or other reasons.

Improving the social services of the press

In the face of all this, what can be done? How can we make sure that the press will do a good job of enlightening the public, of servicing the political system, of safeguarding personal liberties? How can we make sure of a press adequate for the needs of contemporary society? Since dozens of books have already dealt with those questions, these few concluding paragraphs obviously can do no more than suggest some general points in tackling a problem for which there is no simple panacea.

First, a realistic solution to the problem must take into account the commercial basis of the press. Our system of press support is conditioned by the social and economic system within which the press operates. There is small chance of abolishing commercial support, even if it were desirable to do so. Granting that, we can see that publication without advertising do not offer a satisfactory solution.

Despite its shortcomings, advertising does confer a number of material benefits on society; and even if it did not, it has become so thoroughly ingrained in our press system that it could scarcely be seriously diminished. Moreover, although advertising accounts for some of the undesirable aspects of our press system, it is not solely to blame.Nor does breaking up concentration in the

communications systems now seem a realistic corrective. The commercial basis of the press, not the mere size of the units, has caused many of the undesirable practices of the press and much of the undesirable content. It is hard to see how small publications, may more than large ones, can escape the economic compulsions of the system.

In view of the pressure for large audience inherent in the commercial system, it is also hard to see how small publications could be kept from growing once more into large ones. Behind proposals to break up large communications units appear to be two suppositions of dubious validity. One is that multiplicity of publications necessarily means multiplicity of viewpoints. The other is that the small publisher is more responsible than the large one.

Secondly, and satisfactory proposal for the improvement of press performance must be based on the combined efforts of press, public, and government. On the one hand, we cannot expect the press alone to remedy its shortcomings; on the other hand, there are dangers in granting too much power over the media of communication to even a democratic government. Looking to the press alone to do away with its faults carries a rather strong implication that publishers are willfully negligent instead of handicapped to a large degree by the nature of the system.

True, more publishers should put responsibility for carrying out their public service functions above profit. But in a very real sense, the press can be no better than the public it serves because it is dependent upon the public for support-directly in the case of books and some magazines, indirectly in the case of other magazines and virtually all newspapers. Looking to the government alone is not desirable. Although the government perhaps may safely take a more active part in communications

than it has in the recent past, there are good reasons for being wary of granting even a democratic government excessive power over the communications system. Even if one trusts a democratic government with the operation of the press system, there is a strong possibility that the media content would still be prepared for mass audiences; and as a result of this mass appeal, the content in the end might very well be no better than that of the commercial media and perhaps worse.

The public can, if it wills, assist considerably in improving press performance. If the public raises its own level of taste, then demands a higher standard in the media, the press may well oblige. The public can voice its discontent with low-denominator content, can protest bias and distortion when they truly occur and when it observes them, can lend its support to the worth-while publications and withdraw its support from the irresponsible ones. The public can willingly bear a larger share of the cost of some communications services, especially those furnished by publications servicing intellectual and cultural minorities.

Thirdly, our traditional theory of press freedom might well be re-examined, not with a view to abandoning it but with a view to adapting it to current conditions and requirements. Changing conditions have altered the nature of the right of freedom of the press. Originally, freedom of the press was a personal right. It would be exercised by anyone with the comparatively small sum needed to establish a newspaper or magazine, to issue a pamphlet or book.

Today, however, the high cost of starting new communications ventures and the high degree of concentration in the communications field have left the large majority of persons unable to exercise their right of free expression. Their right is held in trust for them, for

all practical purposes, by the persons in an economic position to operate the media. Thus, the press should give space to a wide range of representative views, not just the views of the majority, not just the views of the media operators themselves. In the face of concentration of ownership and the commercial nature of the press, in the face of" disenfranchisemen" of cultural minorities and a narrowing of the areas of free discussion in the media, we might inquire if our traditional concept of negative freedom, the concept of "freedom from," is adequate for the needs of society.

Traditional theory of press freedom was founded largely on the philosophical assumptions of the Enlightenment. These assumptions have been strongly challenged by the revolution in contemporary thought. Quite possibly, as Jensen has suggested, this revolution in thought might furnish the ideological basis for a new concept of human liberty and freedom of the press. Such a new concept might involve a judicious blending of "freedom from" and "freedom for". Under the concept, we might explore the possibility of cautiously allowing government and of encouraging the large private foundations to join private enterprise as working partners in the communications system.

Journalists in the United States have never agreed upon the media's responsibilities. The media's responsibilities are often discussed, and several groups have adopted codes of ethics, but no single code has been generally accepted. Moreover, not everyone agrees that the media's responsibilities can or even should be defined. Many journalists fear that attempts to define their responsibilities will be followed by attempts to enforce those responsibilities. They want to preserve their freedom and make decisions for themselves, without being forced to conform to the guidenlines set by anyone else.

Discussions about the media's responsibilities, however are valuable. The discussions force journalists to think about their principles, values, and obligations, and to consider how they should act in a variety of situations. Journalists are not isolated individuals: they are engaged in an old and honorable craft. Those who understand the social importance of their job and its traditions and principles are better prepared to cope with the problems that are likely to arise in the course of their work.

Gabe pressman, a television newsman, believes that, even though they have no written guidelines, the nation's best reporters have always followed a strict code. Pressman says of the unwritten code: "It's a dedication to uncovering the truth, to communicating information to people- information they're interested in getting, information with which they can most closely identify within their own lives. Its a dedication to getting information to them rapidly and accurately, to reporting the news without prejudice." Similarly, columnist walter Lipmann believed that journalists have a duty to do what every citizen should do but lacks the time and interest to do for himself. "That is, to gather information, pick out what is important, digest it thoroughly, and without passion or prejudice, relate it to the problems of the day."

Concern about the media s responsibilities is part of the general concern about the responsibilities of big business. New laws have been enacted to enforce standards considered important to the welfare and interest of consumers. Traditionalists argue that businesses exist to produce goods at a profit for their shareholders, and that they serve society best by doing so. A growing number of Americans, however, insist that businesses also have a responsibility to serve the public. Consumer advocates assert that manufacturers have a responsibility to protect the public's health. For example, children's clothing must be fireprooted, and drug

companies must test the safety of their new medicines. Journalism and the media are faced with similar demands. Their consumers want-not safety-but accuracy. Truthfulness must test the safety of their new medicines. Journalism and the media are faced with similar demands. Their consumers want-not safety-but accuracy, truthfulness. And significance. These traits are, however, much more difficult to regulate and much more dangerous to enforce. In the name of truth and accuracy, the exposure of wrongdoing may be suppressed. Some societies do precisely that.

Four theories of the press

In 1956, Four Theories of the Press was published. It discusses the media's responsibilities and attempts to explain why the media vary so significantly from one society to another. The authors, The authors, Fred S. Siebert, Theodore Peterson, and Wilbur Schramm. emphasized the close relationship that exists between the media and certain basic beliefs that each society holds. These beliefs are about the nature of humanity, the nature of society and the state, the relation of citizens to the state, and the nature of knowledge and truth. Siebert, Peterson, and Schramm found four different theories or sets of beliefs that societies hold about the media: (1) the Authoritarian Theory, (2) the Libertarian Theory, (3) the Communist Theory, and (4) the Social Responsibility Theory.

The authoritarian theory

Authoritarian states dominated Western Europe from about 1500 to 1700, and their political systems had a significant impact upon the press. Citizens in authoritarian societies were expected to serve that state. Philosophers believed that societies had to preserve peace and order, that security and progress - the advance of civilization were more important than individual liberties.

There was a sharp distinction between a nation's leaders and its masses. Authoritarians believed that the leaders were more intelligent than other men and that only they possessed the wisdom and experience necessary to lead the state. Leaders often insisted that they had been selected by God and ruled by divine power. Some of the theory's advocates added that leaders were necessary to control the selfish passions of the masses; they warned that states would degenerate if the masses obtained power.

The leaders of authoritarian states considered printing a threat to their power and issued licenses to regulate its use. The licenses limited the number of persons who could operate printing presses and were issued only to persons who supported the goals of the state. Later, printers were required to submit copies of everything they wanted to reproduce to government censors, and the censors had to approve the material before it could be published. Party because censorship systems were too cumbersome, states gradually stopped licensing and censoring the press and began to punish printers only after they published anything that offended the state. Writers and publishers who criticized the government, its leaders, or policies could be charged with treason and sentenced to prison.

Authoritarian theorists supported the system, since they believed that the public was incapable of understanding political problems and that governments were justified in forbidding the publication of anything that might disturb or arouse the masses. Authoritarian states are still common in much of the world. Nazi Germany had an authoritarian press, and so do several countries in South America. Developing countries in Asia, Africa, and the Middle East often employ the same type of system. They tolerate no dissent or criticism.

The libertarian theory

Political theorists began to question the Authoritarian Theory during the sixteenth and seventeenth centuries. Established institutions in Western Europe were under attack. The Protestant Reformation challenged the authority of the Catholic church, and political revolutions challenged the power of authoritarian governments. At the same time, new discoveries were expanding human knowledge in the fields of geography and science. These changes contributed to an intellectual revolution that emphasized the role of individuals and their right to make decisions for themselves.

Thinkers now began to argue that humans are rational moral beings, and that they have the right to determine their own destiny. Earlier, people were considered servants of the state. Now, political theorists argued that society was composed of autonomous individuals who created the government to protect their rights. If the state failed, they believed that citizens had the right to change or abolish it.

The Libertarian Theory also stressed the need for an "open marketplace of ideas" where conflicting opinions might be allowed to clash. John Miltion believed that truth would emerge victorious from such a clash because men were intelligent and able to distinguish right from wrong. The idea of a free marketplace of ideas rested upon the assumption that every citizen who wished to would have an equal opportunity to speak, and that his ideas would receive a fair hearing. Theorists assumed that individuals would voice their opinions and that others would listen to them.

Freedom was conceived as a natural and absolute right. Under the Libertarian Theory, individuals could do as they pleased. No one, especially not the state, had a right to interfere with their lives. Political thinkers

realized that some individuals might lie, but they believed that lies would eventually be exposed. The most unpopular ideas were protected because (1) they might help lead to the truth and (2) their protection was consistent with the belief in individual freedom.

The Libertarian Theory also changed theorists' attitudes toward the media. For the first time, the media were expected to serve as watchdogs over the government. Political thinkers no longer trusted the government and felt that it would have to be watched so that it could not abuse its power. To serve as an effective watchdog, the media had to be completely free and the government had to be prevented from interfering with what they printed. The government lost the right to suppress any statements, even statements that it considered false, because men feared that the government would use it s power to suppress statements critical of its own performance.

By the end of the eighteenth century, the Libertarian theory had spread through most of Western Europe and then to America, where it influenced the men who wrote the U.S. Constitution. Thomas Jofferson voiced a part of the Libertarian Theory when he declared that governments should maintain a framework within which individuals could develop their own capabilities. Jefferson admitted that individual citizens might err, but he believed that the majority would make sound decisions. jefferson added that the press was an essential source of information for citizens who needec' to be educated and informed.

The U.S. Constitution mentions the press only once- to declare that Congress cannot abridge its freedom. The Constitution does not define the term "press" or place any restrictions upon it. The authors of the Constitution feared that the press might be harassed and regulated by

the government, not that the government might be inconvenienced by the press. The press was given no legal responsibilities; it cannot be censored or forced to publish anything contrary to its own beliefs. Thus, the Libertarian Theory is more than an abstract philosophy. It had a direct influence upon the Constitution, and it continues to protect journalists at work in the United States today.

The communist theory

The philosophy developed by the Soviet Union is an offshoot of the older Authoritarian Theory, but it has some significant variations. Most dictatorships have allowed the media to remain in private hands. In communist states, the media in Communist states are ideological tools used to indoctrinate the masses and help the state reach its goals. Escapism - that is, entertainment- is a sin; the media are not allowed to distract readers from serious issues. Although at first it may seem somewhat paradoxical, the Soviet Union encourages the media to publish critical letters and articles. Major newspapers such as Izvestia receive up to 1,500 letters a day from ordinary citizens who express their personal grievances, criticize minor bureaucrats, and expose instances of corruption and inefficiency.

In addition to serving as an outlet for the public's frustrations, the letters give the country's leaders an idea of the popular mood and alert them to serious problems, particularly at the local level. The criticisms expressed by the public, however, are sharply limited. The public is not allowed to question the basic system or fundamental beliefs about the governments and its policies; it cannot criticize Communist ideology, the Party, or the Party's leaders. More serious criticism reported by the media comes from the top— from Party leaders —and is conveyed down to the masses. Because the media's

editors are carefully selected and watched, there is little need for censorship. Americans argue that the media in Communist nations are controlled by their governments. Communists respond that the media in the United States are dominated by the rich and slanted to maintain the status quo. Communists claim that the American masses have no freedom of expression and no protection against capitalists who own the media and use them to promote their class interests.

Americans respond by pointing to the great variety of publications and the enormous diversity of opinion that can be found here, from the most rigidly authoritarian to the most vehemently anarchistic. The masses, in the American view. Are more likely to find expression of their class and individual interests within this diversity than they could ever final within the strict uniformity of opinion imposed by communist governments.

The theory of social responsibility

During the twentieth century, thinkers in democratic societies began to express dissatisfaction with the libertarian. Theory. Many of the theory's most fundamental beliefs appeared to be mistaken. Also, the media and certain beliefs were changing. And the changes made it more difficult to endorse wholly the Libertarian Theory. The Libertarian Theory is based upon the belief that people are intelligent, rational, and capable of making decisions for themselves. But psychologists no longer are certain that men and women can tell the difference between truth and clever propaganda. Theorists still believe that people are capable of thinking for themselves, but they now suspect that individuals are reluctant to do so. Humans seem to be more interested in satisfying their immediate needs than in searching for truth. They appear to be lethargic and easily misled by

demagogues. Political scientists also are losing their faith in the free marketplace of ideas. They suggest that the Libertarian Theory fails because there is not a real clash of ideas. Most editors either agree with one another or avoid debates. Even when conflicting ideas are available, the public fails to critically examine the information it receives. Moreover, because most cities now have only one newspaper, citizens no longer can be certain that divergent ideas will be published. The press, just as in the old authoritarian days, has fallen into the hands of a powerful few.

Twentieth-century thinkers believe that the media should remain free, but they now add that the media have certain responsibilities. The major premise of their new theory, the Theory of Social Responsibility, "is that freedom carries concomitant obligations; and the press, which enjoys a privileged position under our government, is obliged to be responsible to society for carrying out certain essential functions of mass communication is contemporary society." So freedom no longer is considered a natural right. It has become a conditional right. The new theory's proponents argue that society grants the press certain rights, and that the press loses its claim to those rights if it abuses or fails to use them responsibly.

The Theory of Social Responsibility also stresses "The public's right to know" rather than publishers' right to speak. The libertarian Theory had asserted that publishers' right to speak. The Libertarian Theory had asserted that publishers could say and do whatever they pleased. The Theory of Social Responsibility insists that the public has a right to be informed, and that the media have a responsibility to provide the information needed to be good citizens. The information must be accurate, fair, complete, and untainted by the media's own biases. The Theory of Social Responsibility insists that the press

has a right to make honest mistakes, since errors are an inevitable part of the learning process, but not to deliberately lie.

Toward a definition of a responsible press

The commission of Freedom of the press

In 1942, Henry Luce suggested that there was a need to study the freedom of the press in the United States. Luce, who published Time magazine, talked to Robert M. Hutchins, chancellor of the University of Chicago, and Hutchins selected a dozen men to serve on a commission with him. All of the commission's members were scholars; 9 of the 12 were associated with a college or university. It was the first time that a highly competent, independent group with a plentiful supply of money studied the media in the United States. Luce donated $ 200,000, and another source provided an additional $ 15,000 for the study. The commission met for three years, from 1944 through 1946. Its report, titled A free and Responsible press, was published in 1947.

The commission studied all the media in the United States, including books, magazines, moves, radio, and newspapers. Television had not yet become a mass medium, and the commission found few problems in the other industries, so its report dealt primarily with newspapers. The commission concluded that the press has five responsibilities. Although intended primarily for newspapers, the responsibilities is listed might be modified into a general theory applicable to all the media. The commission declared that newspapers must provide:

1.   "A truthful, comprehensive, and intelligent account of the day's events in a context which gives them meaning."

2.   "A forum for the exchange of comment and criticism."

3. "The projection of a representative picture of the constituent groups in the society."

4. "The presentation and clarification of the goals and values of the society."

5. "full access to the day's intelligence."

The first requirement listed by the commissions simply that the media must be accurate; the should not lie. The commission added that the media must separate fact from opinion and report the facts in a way that can be understood. It concluded that the media do not have to publish everyone's ideas, but that they have a responsibility to publish significant ideas contrary to their own.

The commission also declared that newspapers should present the truth about every group in society-not just stereotypes, whether favorable or unfavorable. The commission felt that newspapers' past performance was clearly inadequate, and it warned that if the papers continued to abuse their freedom, new laws might become necessary to protect the public. The commission's complete report, which filled a 139-page book, is considered the first clear summation of the Theory of Social Responsibility. Journalists were generally critical of the commission's report. The complained that not a single member of the commission worked for or truly understood the news media, and that the five responsibilities listed by the commission were vague, intellectual ideals that would be impossible for anyone to attain. How, for example, could journalists determine the ":goals and values of society?"

Journalists also complained that it is impossible for them to report all the news: there is simply too much of it. So they must be selective and must discriminate. The commission's recommendations failed to acknowledge

the fact that newspapers entertain as well as inform, and that they are private businesses which must satisfy their audiences and earn a profit in order to survive. However, journalists were even more disturbed by the threat of new government controls. Despite their criticisms of the commission's report, journalists have begun to accept many of the Theory of social Responsibility's most basic premises. Journalists generally agree that they have a responsibility to serve the public. The frequently acknowledge "the public's right to know," and they believe in the importance of their role as watchdogs over government, which has remained a part of the Theory of Social Responsibility.

During a speech at Milwaukee, University in Milwaukee, Wisconsin, William R. Burleigh, managing editor of the Evansville (Indiana) Press, acknowledged many of the media's other responsibilities, and it seems likely that a majority of the nation's journalists would agree with his comments. Bureleigh complained about the emphasis frequently placed upon the first part of the First Amendment which guarantees the media's freedom; "Too few (journalists), it seems to me, concern themselves with the other half of the equation, in which any freedom must be weighed, the question of responsibility." He added, "The Bill of Rights recognizes the right of the people to a free press. Note well that doesn't say right of publishers or of reporters. Neither is a special caste. The right belongs to the people. And to the degree that this confers and privilege on the press, it at the same time places obligations on us, obligations to compile and publish useful, sound, thoughtful information for the citizenry."

Other attempts to define the media's responsibilities

Attempts to determine the media's responsibilities are continuing. As one alternative, scholars have tried to

identify the world's very best newspapers and to determine their characteristics. It has been suggested that the papers might be used as a "Ya lstick press." Since other papers might use them as a model and try to duplicate their performance.John Merrill, author of the Elite press, complains that most of the world's newspapers are "entertainment/play-oriented" and that they cater to the superficial whims of their mass audience. Merrill adds:

The popular press—the "hodgepodge press"-calls the people of the world to play. It does not call them to thin, to assess, to become concerned, involved, or emphatic, Its journalism is splashy, superficial, thoughtless, and tenuous. It is complacent journalism that appeals to self and to status quo, to mere verbal frolicking about the surface of vital issues. It is "supermarket" journalism-a little of everything for everybody. It shows no thoughtful selection, assessment of editorial matter, meaning, or interpretation. It is vulgar in the truest sense of the word- speaking to the masses of semiliterates who feel they need to read something called a "newspaper" but who have no desire to understand the vital issues of the day, and even less desire to concern themselves with these issues.Despite the generally dismal picture, Merrill believes that a small group of newspapers in the world is serious and idealistic. Merrill, who calls these newspapers the "Elite press," adds that they possess several distinctive characteristics.

Merrill believes that the world's best newspapers are reliable and responsible. They are sincerely concerned with the public's right to know and stress significant ideas about politics, international affairs, business, art, science, and education. They are concerned about the future and the probable effect of current events in days to come. Elite papers also devote a large portion of their space to interpretive stories; they explain why facts in the

news are significant and how they relate to ideas in other
fields. The stories give readers a continuing education
and most of the facts they need to make wise decisions.

According to merrill, the world's elite newspapers
also are dignified, serious, and stable. Even their
appearance is conservative. They publish smaller
headlines and fewer pictures than other newspapers.
Some contain no comics, crossword puzzles, or other
popular features. Elite newspapers are more concerned
about the content of their editorial pages. They try to lead
rather than follow public opinion and have a reputation
for being courageous and for speaking out on issues,
regardless of the issues' popularity.

Elite newspapers also have a reputation for
presenting all the significant alternatives to complex
problems, including ideas contrary to their own. They are
unbiased, accurate, and known for their consisiently
good writing. Unlike other papers, they are not
preoccupied with trivial local events. Elite newspapers
are seriously concerned about national and international
affairs. In a similar effort, Time magazine complied a list
of the nation's 10 best newspapers in 1964 and again in
1974. Five of the newspapers that Time selected in 1964
did not appear on its 1974 list. They were replaced by
other newspapers that Time's editors and correspondents
felt had improved more sharply. Time listed the papers,
in alphabetical order, and the papers selected in both
years included.

1964	1974
Baltimore Sun	Boston Globe
Cleveland Press	Chicago Tribune
Los Angeles Times	Los Angeles Times
Louisville Courier-Journal	Louisville Courier-Journal
Milwaukee Journal	Miami Herald

Minneapolis Tribune	Milwaukee Journal
New York Daily News	Newsday (a Long Island daily)
New York Times	New York Times
St Louis Post-Dispatch	Wall Street Journal
Washington Post	Washington Post

Time said it selected the latest group of papers because, "They make a conscientious effort to cover national and international news as well as to monitor their own communities They can be brash and entertaining as a well as informative. They are willing to risk money, time, and manpower on extended investigation. .they offer a range of disparate opinion." Time praised the Chicago Tribune for its investigative reporting, including stories about voter frauds in Cook county and an eight-part series about police brutality. Time cited the Milwaukee Journal's "fair-minded coverage," Newsday's "solid local coverage" and the size of the New York times' editorial staff (about 650 persons). Time also noted that the washington post, under the direction of executive editor Bean Bradlee, had tripled its news budget and recruited many of the nation's most talented journalists.

Another study provides an even better list of the characteristics that journalists themselves consider important. Journalists who wanted to evaluate the performance of all 109 daily newspapers in the New England states declared that each paper should set its own standards. However, the journalists established six additional standards or sets of responsibilities that might be used to judge the papers performance. The standards are consider ably more specific than the guidelines suggested by the commission on Freedom of the press, yet they involve many of the same basic characteristics. Howard K. Smith of ABC Television has added that journalists should also try to be more interesting. Smith complains that newspapers in the United States are the

dullest that he has read anywhere outside of dictatorial countries like Russia "Where the prose is all wood." Smith acknowledges journalists' need for scholarship, experience, and dedication but says. "The first requisite is that you know how to tell a story in an interesting way." Smith complains that readers often fail to go beyond the second paragraph of news stories and, "What that means, is that most of the news written for newspapers, possibly 80 or 90 percent of it, is wasted effort. It is just too dull to hold the reader's attention." A final recommendation, which was offered by the Commission on Freedom of the Press, is more controversial. The commission suggested that journalists have a responsibility to criticize one another. The commission explained, 'professional standards are not likely to be achieved as long as the mistakes and errors, the frauds and crimes, committed by units of the press are passed over in silence by other members of the profession."

The new England Daily Newspaper Survey used these six criteria to evaluate the performance of daily newspapers in the region.

1. A newspaper should cover government at every level. It should devote special attention to the government agencies in its area-not only by covering meetings but by critically examining the activities of the agencies. Recognizing its role as a check on government, a newspaper should present the views of the critics of government and those affected by its activities, as well as the statements of government spokesmen.

2. A newspaper should go beyond government news and bulletin-board journalism to reveal the quality of people's lives and the human fabric of its community. This can be achieved through several techniques-imaginative photography, personality

profiles, in-depth features, and stories that provide a local dimension to important national and international issues.

3. A newspaper should attempt to publish, as best it can, a complete and balanced presentation of local, state, national, and international news, Obviously a metropolitan paper cannot be judged by the same standard as a small-town paper that prints only eight pages a day and is bought for its local news. But papers of all sizes must emphasize the news of continuing important eat all levels-international as well as local.

4. In an age when the medium is said to be the message, a newspaper must attempt to present its news as effectively and as attractively as possible. Page layouts, photographs, charts, type selection, graphics-all must help guide the reader to the news that is most important and encourage him to read what he otherwise might overlook.

5. A newspaper should stand for something. Its editorials should take a position on the important local issues-not just Watergate and the world. It should clearly, logically explain its point of view. Editorials need not argue forcefully each and every day, but regularly the reader should sense that the editorial writer truly cares about what he is saying. A paper also should encourage diversity of opinion, including letters to the editor that criticize the paper.

6. A newspaper's management-as well as its news staff-should operate the paper with integrity: the news columns should be free of bias; employee policies that avoid conflicts of interest should be enforced; pay and working conditions should encourage the professionalism of the staff.

Members of the commission warned that, "If the press is to be accountable-and it must be if it is to remain free-its members must discipline one another by the only means they have available, namely public criticism." Other critics have observed that it is hypocritical for the media to contend that they are immune to criticism themselves when they insist that they have the right to criticize everyone and everything else.

Despite twentieth-century theories about the media's responsibilities, courts in the United States continue to abide by the Libertarian Theory. Newspapers may voluntarily accept some moral responsibilities, but-because of the protection provided by the First Amendment-they cannot be forced to become more responsible. The U.S. Supreme Court still emphasizes the need for a vigorous debate and a free marketplace of ideas, and both reflect the liberation Theory, In 1945, Justice Hugo Black explained that, "The First Amendment rests on the Assumption that the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public, that a free press is a condition of a free society."

In new York Times Go. V. Sullivan, a libel suit the Supreme Court heard in 1964, Justice William Brennan added: "We consider this case against the background of a profound national commitment to the principle that debate on public issues should be uninhibited, robust, and wide-open." In 1966, Warren Burger, Now chief justice of the U.S. Supreme Court, bluntly ruled that newspapers do not have any legal responsibilities. Burger declared that, "A newspaper can be operated at the whim or caprice of the owners...."

Criticisms of "social responsibility"

Many journalists prefer a theory which emphasizes the media's freedom rather than their responsibilities or the

need for any additional restraints. These journalists say that the United states already has the very best possible media system, a pluralistic one. Essentially, the believe that the free marketplace of ideas has succeeded and can continue to flourish - and that it is better than any possible alternative.

News media in the United States are not owned or controlled by any one individual or group. They already provide a variety of ideas, and they disseminate far more information than any one person is capable of absorbing. Some media may abuse their freedom, but journalists believe that occasional abuses are more tolerable than governmental controls. Author John Merrill, one of the most outspoken critics of the Theory of Social Responsibility, adds that journalists must retain the freedom to make their own decisions. Merrill points out that attempts to list the media's responsibilities are arrogant and dictatorial, and that the media will become more controlled if they accept the responsibilities.

On the surface, merrill continues, the emphasis placed upon the media's responsibilities seems commendable. He believes, however, that the Theory of Social Responsibility must be challenged because it implies that journalists cannot determine what is socially responsible as well as some outside or impartial group. Merrill warns that the media's responsibilities will not be defined by individual person, freely regulating their own journalistic actions, but by "some elite group-some arrogant collectivity whose members feel they can inject their senses of responsibility into each of us." merrill believes that a journalist's only responsibility is the responsibility to remain free. Journalists think they are free, says Merrill, but they are giving up their freedom and conforming to institutional and professional norms, social ethics, and fuzzy altruism. He adds that:

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American journalism is becoming so institutionalized and professionalized and so immured with the nascent concept of "social responsibility" that is voluntarily giving up the sacred tenet of libertarianism-"editorial self determinat-ion"—and is in grave danger of becoming one vast, gray, bland, monotonuous, conformist spokesman for some collectivity of society."

Merrill concludes that if journalists themselves are allowed to determine what is socially responsible, there is no need for any further debate, for that is exactly what we already have in a libertarian, laissez-fare, independent media system "That the social responsibility people are trying to discredit and change."

The Theory of Social Responsibility also has been called "idealistic nonsense." Its more cynical critics have proposed another theory, which they consider more realistic. They call the theory "Make-A-Buck." The critics explain that the media are motivated primarily by the desire to earn a profit, not by a desire to protect or educate the public. They believe that the media simply give the public whatever is most profitable. Media critic Ben Bagdikian was reflecting the Make-A-Buck theory when he commented that, "The newspaper business is a great, clanking industry that buys paper at 7 cents a pound and sells it at 36. Television owners purchase a license from the government for $ 33-33 a year and sell the results for as much as $10 million. They are corporations dedicated to profit."

Misconceptions about media responsibilities

Some demands made of the media are unrealistic and reflect an unfortunate misunderstanding about the media's responsibilities. For example: some individuals believe that the media have a responsibility to provide publicity for every group that wants it. Others believe that the media should suppress unpopular ideas, that

they should report only pleasant news, and that they should offer solutions to the many problems they do report. The media's primary obligation is to their audience, not to groups seeking more favorable publicity. The media, even those on college campuses, are besieged by individuals and groups that want more recognition, and many become indignant that the media refuse to help. Each group insists that its stories are important and that the media have an obligation to publish them. Despite their pleas, editors reject stories that would interest only a limited number of persons and that would praise rather than inform.

Editors also reject the notion that they have a responsibility to suppress unpopular ideas. Few issues are so misunderstood. Journalists want to report the truth, but stories about unpleasant happenings often distress readers. When an indignant woman visited his office, the editor of the old New York Sun, apparently tried of his readers' criticisms, cried out in exasperation, "lady, the Sun cannot be blamed for reporting what God has permitted to happen." More recently, John Chancellor of NBC News noted. "Too much of the public doesn't understand that just because we report a story dos not mean we are in sympathy with what we are reporting." Katharine Graham, publisher of The Washington Posts has pointedly remarked: "To say the press ought to suppress some news, if we deem it too bad or too unsettling, is to make the press into the censor or the nursemaid of a weak and immature society. We cannot serve ourselves and our heritage by running away from our troubles.... National security does not rest on national ignorance. This is hardly the faith of a free people." Editors also reject the nation that they have a responsibility to be popular. A strong newspaper will inevitably alienate many of its readers by reporting unacceptable ideas and by taking stands on controversial

issues. When they make a decision, editors must consult their conscience-not the box office. Nor can the media solve all the problems they report. Journalist John Colburn has explained that, "While it is our responsibility to report events and their meaning, it is not the function of the press to solve all the problems of the world. That is your responsibility as citizens. Our task is to perceive, to identify, and to try to clarify issues and enable our readers to make their own evaluation in order to help solve the problems."

Radio and television: A special case

Unlike newspapers, radio and television stations are regulated by the government. The federal government is able to regulate the stations because of broadcasting's unique characteristics. Courts have ruled that the airwaves used by broadcasters belong to the public. Also, there is a limited number of frequencies, and the government must allocate them so that the signals broadcast by different stations don not interfere with one another. While serving as a circuit court judge, Warren Burger explained the philosophy that governs the broadcast media. Burger declared:

> A broadcaster has much in common with a newspaper publisher, but he is not in the same category in terms of public obligations imposed by law. A broadcaster seeks and is granted the free and exclusive use of a limited and valuable part of the public domain; when he accepts that franchise, it is burdened by enforceable obligations.

The Radio Act of 1927 and the federal Communications Act of 1934 both declared that broadcast stations could be granted a license only if "the public interest, convenience, or necessity would be served by the granting there of." Neither law attempted to define "the public interest,

convenience, or necessity" nor to specify what broadcasters would have to do to satisfy the requirements. Congress left that task to the FCC, which issues licenses, sets standards, and checks to see that broadcasters are fulfilling their responsibilities. The FCC cannot censor broadcasters; however, it can consider the general types of programs that are broadcast. The FCC often has to choose between two or more applicants for the same license. Because all the applicants usually meet the minimum requirements set by law, the FCC has generally ruled on the basis of their program proposals. It tries to determine which applicant's programs will serve the public interest most effectively.

The minimum requirements are simple. To receive a license, applicants must be citizens of the United States. They must be of good character, and they must possess adequate financial and technical qualifications. The FCC has added that broadcasters also have a responsibility to (1) offer well-rounded and varied programs, (2) satisfy the needs of their community, (3) discuss issues of public significance, and (4) satisfy the needs of their community, (3) discuss issues of public significance, and (4) threat every person and issue fairly. Also, the FCC has warned broadcasters to avoid material that might injure or mislead the public: to limit the amount of time they devote to advertisements; and to avoid false, misleading, and deceptive advertisements.

The Federal Radio Commission (FRC), established in 1927, held that radio stations have a responsibility to provide a well-rounded variety of programs "which meet the special needs and interests of substantial groups in the listening public." The FRC suggested that stations should broadcast programs about agriculture, religion, education, and public affairs, for example, in 1960, its successor, the FCC, expanded the list to 14 types of programs that if considered necessary to adequately serve

the public. As just a few examples, the FCC urged radio and television stations to broadcast programs that offered residents of their communities an opportunity to express their opinions and that developed and used more local talent. The FCC also wanted more newscast, editorials, children's programs, and political broadcasts. However, the FCC has allowed a few stations to devote most of their time to more specialized types of programs since competing radio and television stations in the same communities are expected to offer the other programs.

The FCC also emphasizes broadcasters' responsibility to serve their local communities. When citizens apply for a broadcasting license, they are required to describe their audiences' "needs and interests" and to show how they intend to satisfy those needs. Applications which failed to satisfy the requirements have been rejected. For example: the FCC refused to issue a license for the construction of an F.M. radio station in Elizabeth, New Jersey, because none of the persons seeking the license lived in Elizabeth and because the had not considered the city's characteristics and needs. The applicants planned to broadcast the same programs in Elizabeth that they broadcast on other stations in Illionis and California. In rejecting the application, the FCC explained; "Communities may offer, and so may their needs; an applicant has the responsibility of ascertaining his community's needs and of programming to meet those needs." Two other policies, the Equal Time Requirement and the Fairness Doctrine, add to the responsibilities expected of broadcasters. Section 315 of the Communications Act of 1934 requires broadcasters who permit one candidate for public office to appear on the air to offer equal amounts of time to other candidates for the same office. However, Congress has exempted bona fide newscasts, news interviews, and news documentaries from the equal Time

requirement. So stations that mention one. Candidate during a newscast are not required to devote an equal amount issues, however, all of his opponents must be offered similar 15-minute blocs of time.

The public is most likely to hear about the Equal Time requirement during presidential elections. If the television networks give time to presidential candidates nominated by the Republican and Democratic parties, they are required to give equal amounts of time to qualified candidates from every other party- regardless of how small and insignificant their parties might be. As a consequence, many broadcasters are hesitant to put any candidates on the air. In 1960. Congress temporarily suspended the Equal Time Requirement for presidential and vice presidential candidates, and its action enabled the networks to broadcast the debates between John F. Kennedy and Richard M. Nixon.

If the Equal Time Requirement had not been suspended, the networks would have been required to provide equal amounts of free time for 14 minor candidates. In 1976, the networks were able to broadcast the debates between Jimmy Carter and Gerald Ford because the debates were sponsored by the League of Women Voters; they were not put on by the networks themselves. Consequently, the debates were considered legitimate news events, and the networks did not have to give any time to minor-party candidates.

The Fairness Doctrine is far more sweeping in its requirements. It declares that radio and television stations have a responsibility to discuss significant issues and to present every side of controversial issues. The FCC explained the Fairness Doctrine's philosophy and requirements in a statement issued on January 1, 1949. It declared that the broadcast media must "be maintained as a medium of free speech for the general public as

whole rather than as an outlet for the purely personal or private interests of the licensee." The FCC continued. "This requires that licensees devote a reasonable percentage of their broadcasting time to the discussion of public issues of interest in the community served by their stations and that such programs be designed so that the public has a reasonable opportunity to hear different opposing positions on the public issues of interest and importance in the community."

Broadcasters cannot simply provide time when it is requested. They are expected to actively go out and seek the proponents of minority viewpoints, then put them on the air so their stations can provide balanced broadcasts of opposing viewpoints. The Fairness Doctrine also requires stations that attack an individual to show the victim a copy of the attack and given him a reasonable opportunity to respond to the criticism. Unlike the Equal Time Requirement, which applies only to political candidates, the Fairness Doctrine does not require broadcasters to give each person exactly the same amount of time - only a "reasonable" amount.

In at least one case, the fairness Doctrine has been applied to advertisements as well as to news programs. A complaint filed against WCBS-TV in New York charged that the station broadcast numerous commercials for cigarette manufacturers but refused to provide any time for persons who wanted to warn the public about the dangers of smoking. When the case was appealed to the FCC, it decided: "We believe that a station which presents such advertisements has the duty of morning its audience of the other side of this controversial issue of public importance -that, however enjoyable, such smoking may be a hazard to the somker's health." Radio and television stations that contained to broadcast commercials for the cigarette industry were required to provide free time for warnings about the health problems

caused by cigarette smoking. However, when the FCC later banned all cigarette commercials, most broadcasters stopped providing time for the warnings. As might be expected, broadcasters are generally critical of the government's regulatory powers and complain that the requirements imposed by the FCC infringe upon their freedom of speech. Reuven Frank of NBC has observed that, if the provisions of the Fairness Doctrine were applied to a newspaper, they "would be thrown out of any American court as a violation of the Constitution, as a direct contravention of the Bill of Rights." Frank believes that persons who say government regulation is necessary fail to consider what the first Amendment was intended to achieve. "Its purpose was to keep all government out of the news."

While he was chief executive officer of RCA, Robert W. Sarnoff complained that government regulations rest upon the assumption that, "in the field of journalism, the government can better judge what is in the public interest than the press or public itself-an assumption directly contrary to the Constitutional guarantee that 'Congress shall make no law... abridging the freedom of the press. "Sarnoff said the Equal Time Requirement should be repealed because it forces television networks to give time to candidates from frivolous parties in whom the public has little or no interest. He has been equally critical of the Fairness Doctrine on the grounds that it gives an arm of the government the power to second-guess the judgment of broadcasters who report events and issues that, at times, involve the government itself." Thus, broadcasters contend that the government's regulations have failed. They explain that the Equal time Requirement was intended to give every candidate for a political office an equal opportunity to express his opinions. In reality, the requirement may compel broadcasters to deny time to distinguished men and

women because they would also be required to give time to the most trivial and irresponsible candidates. Similarly, the Fairness Doctrine was intended to encourage balanced discussions about controversial issues. broadcasters contend, however, that it encourages them to avoid the issues. Broadcasters who discuss controversial issues may be asked to justify their programs, to prove that they complied with the Fairness Doctrine or to provide time for an assortment of citizens who want to express conflicting viewpoints.

Discussions about the media's responsibilities often overlook two factors of fundamental importance: financial incentives and the related responsibilities of the American public. A study in Canada found that the media there do not try hard enough to improve "because there is no economic incentive to do so quite the reverse, in fact." Media in the United States would also be more likely to improve if there was some economic incentive to do so if it could be conclusively demonstrated that the improvements would be more profitable.

Most persons, journalists included, generally agree upon the characteristics that are desirable in news media, but they disagree —often sharply— over the questions of who should define the media's responsibilities and whether those responsibilities should be enforced. Journalists reserve the right to determine the standards. With respect to government regulations, there is no clear evidence to indicate that they would succeed. In the broadcasting industry, for example, critics contend that the government's efforts have backfired and stifled the very characteristics they were intended to encourage.

8

Future of Educational Broadcasting

The media program in a school includes all of the media services to the school, the administration of the collection, and uses of media, both book and nonbook materials. All are coordinated in the library media center under the direction of the librarian or media specialist. To make effective use of media, whether in a school on the elementary or secondary level, or in the university, administration must be well-planned and coordinated. To effectively use materials they must be organized and cataloged. There must be a carefully planned and balanced program of learning resources.

The concept of the media center or learning resource center provides for integrated use of all media. In education, the secondary schools have led the way in this approach to learning. Many of the community colleges are moving toward the concept of integrated media use, but he four-year program is changing more slowly, and in many colleges the audio-visual department is entirely separate form the library. Edgar Dale has said that "every classroom can have the best in instructional materials now produced" but even if the school's instructional materials are less than excellent, they must be well-organized and administered for effective use. The library is the center of the program and must lead the way to effective use of educational media.

A fine, attractive learning resources center is not the only answer. Teachers must be led to, informed about, and must make use of book and nonbook resources to be found in the center. The program of the media center must be planned also to meet the varying and different needs of students. It is the responsibility of the school librarian or media specialist to formulate the objectives of the specific media program, the sum total of all services and learning involved in the center. This must be based upon full and effective participation in the school's curriculum planning.

One objective must be to stimulate and guide students and teachers in the uses of media. Another of the objectives of the media center must be to provide the opportunity for creative uses of media, to recommend and suggest to students appropriate uses of all media as they work in the center or library. It is necessary that teachers be involved in the selection of media as well as in utilization.

To effectively use media as in integral part of the classroom instruction, teachers must know what is available, have previewed the materials, and have access to the needed equipment and materials. Most of the media program will be implemented outside the center itself, to facilitate and enrich the instruction in the classroom. "The educational program of the school is strengthened in direct proportion to the quality of the school's library service," said the 1960 Pennsylvania Governor's Committee on Education.

Media in curriculum design

There are a variety of definition of educational technology or educational media. The Random House Dictionary defines technology as "The application of knowledge to practical ends, as in a particular field: educational technology." The U.S. Office of Education has

established a National Center for Educational Technology. In our schools and libraries we are most concerned with media, many resources which are used in teaching and learning. Hence the name educational media. The Department of Audiovisual Instruction Commission on Definition and Terminology has this definition: "Educational technology is that field of educational theory and practice primarily concerned with the design and use of messages which control the learning process." The term audiovisual communication was the label formerly used.

The Presidential Commission on Instructional Technology offer the following: "Educational technology is a systematic way of designing, carrying out and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communication, and employing a combination of human and non-human resources to bring about more effective instruction."

Whichever definition is chosen, the important aspect is that education is a systematic process within the framework of educational technology or educational media, a process with a purpose. The purpose of curriculum design is to bring about more effective learning, to solve educational problems, to design effective instruction. Curriculum development must be systematic if students are to learn to the maximum. We are a goal-oriented society.

Whereas most curriculum planning has traditionally been concerned with concept, design for learning in the classroom and school to day is based upon objectives. Educational technology is concerned with curriculum design emphasizing objectives, as well as with methods, materials and evaluation. A Maugham Lee, writing in *Audiovisual Instruction*, states that "Instructional

development seems to hold the greatest promise yet for a way to improve instruction and promote more efficient learning in our increasingly complex and technological society, and without compounding the very problem that we are trying to solve." The purpose of design as a function is to translate general educational technology theory and research, as well as subject-matter content, into specifications for learning resources. Design is not as broad a term as development; development includes production and evaluation functions as well as design. Students enjoy mediated instruction; they do learn and their varying needs can be met through the use of many media. But media must be a part of planned instruction, and we must have clearly stated objectives. This bibliography emphasizes the importance of design in the curriculum, and the place media has in learning in our schools. We will "manage" learning as we consider planning, controlling, organizing and uses of media. It is the teacher and his new concept of teaching and learning that will change education.

System evaluation

Educational evaluation must be based upon definition. A precise use of terms must be arrived at before evaluation begins, or before the evaluative instrument is devised. The basic terms given here are from the Dictionary of Education.

Checklist: A prepared list of items that may relate to a person, procedure, institution, building, etc., used for purposes of observation and/or evaluation, and on which one may show by a check mark or other simple method the presence, absence, or frequency of occurrence of each items on the list.

Criterion: A standard, norm, or judgment selected as a basis for quantitative and qualitative comparison

Evaluative criteria: The standards against which a person or group a procedure may be checked; the factors considered by an accrediting agency in analyzing the status of an educational institution to determine whether it shall be accredited.

Evaluative method: The procedure in a study that has evaluation as its chief purpose and that in most cases includes some definite fact finding, through observation, and that involves the careful description of aspects to be evaluated, a statement of purpose, frame of reference, and criteria for the evaluation, and the degrees or terms that are to be employed in recording judgements.

Inventory: In the field of evaluation, a test or checklist used to determine the subject's or examinee's ability, achievement, aptitude, interest, or likes, generally in a limited area.

Rating scale: A device used in evaluating products, attitudes, or other characteristics of instructors or learners.

School survey: A study or evaluation of a school, a school system, or any part thereof; may be fact finding, or may indicate the strong and weak features as judged by definite criteria; commonly concluded with suggestions for needed changes and/or recommendations for more desirable practices.

Standard: A goal or objective or criterion of education expressed either numerically as a statistical average or philosophically as an ideal of excellence; any criterion by which things are judged. Librarians and teachers work together when selecting resources to support the program of the school. A librarian must be knowledgeable of the educational program of a school This is a time-consuming task but important as one aims to provide educational media for the total school program. He must

consult with the administration as well as with individual teachers; he must analyze course content and know textbooks well, and must analyze course content and activities to be included in each unit plan. He must know his students, their needs, interests, goals, abilities and concerns. He must match materials with needs; offer services designed to make those materials effective teaching resources in the school.

Learning theory

The items listed in this chapter deal basically with education and learning as related to educational technology. There are references which discuss the major theories of learning in the twentieth century. Emphasis is upon books which attempt to answer the question of what is known about the process of learning which can be used to design better education in our schools and for individual students. A good background reading before progressing to other books in the bibliography is Robert M.W. Travers' *Essentials of Learning: An Overview for Students of Education.* An excellent book of background readings which analyze selected factors underlying the process of individualized learning is R.A. Weisgerber's *Perspectives in Individualized Learning.*

An excellent film-which shows the work of Howard Kendler of New York University, Tracy Kendler of Barnard College, Kenneth Spence of the State University of Iowa, Harry Harlow of the University of Wisconsin and B.F. Skinner of Harvard-is *Learning about learning.* The film is available form State University Film Service, 1400 Washington Avenue, albany, New York 12203. It shows the different strategies employed by these men in developing new theoretical concepts about man's ability to learn, and demonstrates the effect of their theories and work upon methods of instruction in schools and colleges.

Instruction and learning encompass many processes, many that are not included in learning theories specifically. Instruction involves such considerations as stimulating recall, guiding the learning, gaining and controlling attention, aiding remembering, providing feedback and assessing outcomes. Ultimately, it is the learner who performs such functions. Carefully designed combinations of media best serve the teacher and the school to achieve the kind of learning that is most effective. Robert Glaser, in a number of reports issued through the Learning Research and Development Center, University of Pittsburgh, stressed the concept of learning as education for individuals. The University of Pittsburgh Learning Research and Development Center is an important source for up-to-date information on individualized instruction and learning.

In this bibliography, basic background readings on learning are included to provide students of education with an overview of current knowledge. Emphasis is upon research taking place in the field of learning, and the implications of that research for educational planning. The need for further research, as it affects knowledge in learning theory, is emphasized.

Broadcasting is a major form of educational publishing. It provides, in Britain at least, a massive amount of educational material which by and large increases the nation's stock of educational resources, since it is funded separately from the education budget. The length of this book is in part testimony to the extremely wide range of purposes, target groups and contexts for which broadcasting has been used, both in the formal and non-formal education sectors. Furthermore, television and radio are heavily utilised in British schools. To some extent, though, the variety of educational broadcasting merely reflects the wide variety

of educational needs in the public at large. For broadcasting to succeed, it must actually meet those needs, not only by providing programmes but also by enabling real learning to take place. This requires learners' needs to be accurately identified in each of the many contexts in which educational broadcasting is used. It also required choice of appropriate programme formats to meet those learning needs, which will vary from context to context; too often, programme formats have been chosen irrespective of learning needs.

Differences within a medium are far more important than differences between media. Thus a well-designed television programme is more likely to be effective than a poorly designed book, while a poorly designed television programme will be far less effective than a well-designed lecture. Given the talent and resources that have gone into educational broadcasting, it is not surprising that there are numerous examples of extremely effective uses of broadcasting in education, in all sectors.

Many children from poorer homes have learned pre-reading skills before attending school from programmes specially designed for the purpose; teachers in schools in Britain use television and radio extensively, and there is evidence of television and radio helping in the development of language skills and pupils' understanding of other races; broadcasting has been used effectively for in-service teacher training and for recruiting to personal tuition large numbers of adults with reading difficulties; television has proved to be a unique and valuable resources for multi-media distance education, and has been used as a catalyst for the reform of whole national school curricula, resulting in major improvements in academic performance; broadcasters have initiated badly-needed educational development which conventional educational agencies had hitherto ignored or neglected; most of all, broadcasting has

brought education to many who otherwise would not have had it.

However, on balance, broadcasting has tended to be a marginal educational activity. For it to be used successfully very demanding conditions have to be met, and meeting these has often proved to be impossible. Within the formal education sector, more recording and playback equipment, improved training of teachers and major changes in the way lessons and curricula are designed, are all necessary if television and radio are to be used as effective learning resources rather than as a weak form of enrichment.

Broadcasting's real potential for meeting special needs in schools has been largely unexploited because the broadcasters are not expert in these areas and have not used their advisers to the full. In developing countries, while the introduction of direct teaching by broadcasting has led to improved educational provision, it has had little impact on their wider political, economic and social problems, which can really be resolved only by radical political, economic and social reforms. While broadcasting has helped a little then, it is no substitute for more radical action.

In non-formal education the huge educational potential of general broadcasting is chained within the prison of copyright and royalty restrictions. Furthermore the shunting of educational broadcasts to minority channels and unsocial hours limits their effectiveness. This is a particular difficulty for basic adult education which needs access to its target audience through the more popular channels. Broadcasting has generally proved ineffective educationally in non-formal education unless combined with substantial non-broadcast support services. Although in recent years thee has been an increase in truly co-operative projects between

broadcasters and other agencies providing the support services, too often partnerships, where they have existed, have been unequal ones, with broadcasters setting the agenda and timing and the other agencies scrabbling in the wake.

In distance education, the role of broadcasting has never been central in terms of teaching, and in recent years difficulties with transmission arrangements, small student target groups, the ephemeral nature of broadcast material and technological development in non-broadcast audio-visual media, have all combined to promote a shift away from broadcasting to other media, even in those few distance educations which use broadcasting extensively. The basic problem is that broadcasting is a weak instructional medium. It is difficult for students to master skills or acquire deep understanding through broadcasting alone, and difficult for teachers to integrate broadcasting with other learning activities.

In judging effectiveness one must ask: 'By whose criteria?' Broadcasting as a profession has its own standards and criteria for judging success, and these criteria have been developed as a result of organisational and institutional pressures unique to broadcasting. Professionalism in broadcasting allows the potential or richness of the medium to be fully exploited, but at a price. Producers have a different approach to teachers. Educators see viewers and listeners as students for whom a broadcast is only one, relatively minor event in a much broader learning context; for a producer, the programme is the centre of attention.

This is not to argue that broadcasters' criteria and approaches are better or worse, more right or more wrong, than those of teachers. However, educational broadcasters, many of whom started out as teachers, are to some extent caught between these different

professional ideologies, and one will therefore find a spectrum of approaches in any educational broadcasting department. On balance, though, we believe that the technological pressures of creating broadcast programmes, the full-time commitment of educational producers to programme making, and the organisational milieu in which they work, clearly identify them as broadcasters rather than teachers.

There are several clear trends emerging in media development, each of which will have implications for educational broadcasting. Educators have more audio-visual media to choose from. Broadcasting is therefore facing increasing competition from other sources for teachers' and learners' time. Both broadcasters and teachers then will need to identify and fully exploit the unique teaching strengths of broadcasting if it is to continue to be used. Broadcasting can no longer be considered a comprehensive teaching medium in its own right.

Media are converging. Technological developments are bringing together print, the telephone, the computer and video, into integrated systems that combine the strengths of each medium. Such developments have major implications for professional boundaries. Broadcasting skills will not necessarily carry over to the design of computer-assisted learning programmes, not to overall instructional design. Indeed, computer programming and television production require very different approaches and ways of thinking, and tend to attract different kinds of people.

Thus training and skills in one are may inhibit an individual's ability to work in another. Successful integrated teaching will require a genuine team approach, drawing on the separate skills of different professions and the expertise of the teacher. Currently,

the existence of independent, professional broadcasting organisations, with their own career structure and methods of rewards separate from the educational system, is a major obstacle to a fully integrated team approach. Broadcasting is not a superior instructional medium to which others must pay obeisance.

For this reason, we see independent non-broadcast, multi-media production companies who contract consultant staff willing to work together as equals, becoming increasingly more influential in education during the 1980s and early 90s. It will be a measure of their flexibility if broadcasting organisations are willing to enter into such arrangements as one amongst equals. If not, they will find they are losing audience to such independent non-broadcast companies. Because of the rapid expansion in the range of media available to educators, there is an urgent need for practical guidelines on media selection and use. This is an old chestnut in educational technology.

Many attempts have been made in the past by academic to develop theories of media selection, based primarily on pedagogic considerations. All have failed miserable to come up with a theory that can be applied in practice. The difficulty is in finding a practical set of guidelines which can at the same time take account of all the different contextual factors found in education. Also, most previous attempts have concentrated almost entirely on pedagogic factors.

Although these are important, so too are factors such as cost, accessibility, convenience for both learners and teachers, and academic control. Further development of this issue is beyond the scope of this book; it is sufficient here to note that educators are now being forced to choose between a wide range of media, and this will require the unique characteristics of broadcasting to be

clearly differentiated from those of other media if a rational choice is to be made. Current developments in media allow for alternatives very different from the mass media model of education fashionable in the 1960s and 1970s, a model which led to such radical but different innovations as the Open University and the El Salvador ETV school reform.

More diverse, smaller and less centralised models are now possible. This could mean a move away from large national systems of audio-visual production and distribution for education, to more diversity of provision and more local initiatives. There will be much greater opportunities for 'do-it-yourself' production of audio-visual materials by teachers, or for buying audio-visual materials from sources other than broadcasting organisations.

New media allow local schools and colleges to develop their own on-campus, and, more significantly, off-campus multi-media course at reasonable cost. With enrolments of full-time students steadily dropping in a number of countries, local, off-campus teaching using low-cost audio-visual media will become increasingly important. This development will affect not only the use of educational broadcasting but even more so large centralised distance teaching systems, such as the Open University.

The spread of technology, particularly to the home, is likely to increase educational differences within society. Not everyone will be able to afford to be connected to a cable system and to erect a dish aerial for satellite transmission and to buy or rent a video-cassette machine and a video-disc machine and a computer and a telephone, nor will everyone be able to afford the purchase of the software that will carry the educational material. What we will see is a much greater variety of

technological equipment in people's homes with potential
educational uses. Those in most need of further education
and training the unemployed and the less well educated,
who tend to have lower incomes-are the least likely to
benefit from home learning through the new media since
they are likely to have a more limited range of home
equipment.

How does one get through to these people, to
promote the opportunities for further education and
training that are available outside the home? Here surely
remains a vital role for broadcasting since, together with
the postal service, broadcast television and radio will for
many, many years be the only media that can reach into
every home.

Where do these developments leave broadcasting?
We believe there are several major reasons why
broadcasting should continue to play a major role in
education.

Broadcasting reaches the parts that other forms of
education do not reach. In the United Kingdom and
North America, 98 per cent of homes have television sets,
and 97 per cent one radio set least. About 80 per cent of
the United Kingdom population watch television at least
some time during each day, and just over half listen at
least once a day to the radio. The average time each adult
spends watching television in Britain is between two to
three hours per day. In many developed countries, more
than half the population will be watching television at
the same time during some parts of an evening.

Access to television and radio in developing
countries is less universal, particularly regarding
television. According to Katz and Wedell, there was less
than one radio set for every ten people in fifty-four
developing countries in 1976, despite a massive and
continuing expansion of radio ownership over the

previous twenty years in such countries. Nevertheless, there is now only a handful of countries without any form of broadcast television service. There is no country in the world without widespread geographical coverage by radio, and in all but the poorest countries, a high proportion of households have at least one radio receiver. Many bars and cafes in poor urban areas have television sets, and in Latin America and the Middle East, television coverage is wide-spread. Neither television nor radio demand literacy skills, and for most countries these media offer the most effective way of accessing the bulk of the population.

Broadcasting has the capacity to reach people who are uninterested in or disenchanted with conventional educational provision, even if local courses are available. There is a good deal of accidental or unplanned viewing and listening. At certain times-in particular early evening and weekend mornings in Britain-millions of people will be randomly accessing television; not switching on because they know a particular programmes is on at that time, but just waiting to see what comes on. Broadcasting can therefore ply the role of recruiting agent for education, either attracting and holding the audience through the intrinsic interest of the programmes themselves, or leading viewers to pursue the subject further, through purchasing accompanying books, contacting agencies, or enrolling in local classes or correspondence schools.

For working adults, time is at a premium. Study has to be fitted into their leisure time, outside working hours. For many people then, it is attractive to be able to study in the comfort of their own homes, without the cost and inconvenience of travel to schools or colleges which may be miles away.

Broadcasting clearly has the ability to make

education interesting and enjoyable, when it is used well. It provides a break from the normal school routine. For adult learners, independent study, especially starting back to study for the first time, requires considerable motivation. Through the variety of techniques used to appeal to audience, broadcasting can provide a real stimulus to learning.

Broadcasting can help to raise general awareness of problem or situations about which the general public were previously ignorant or apathetic. Thus,as well as the primary target group for a set of programmes, there is often a secondly target audience; the general public, local or national politicians, leaders of industry, whose awareness of a problem may be raised by the programmes. It is claimed for instance by some broadcasters that the British television programmes 'The Chips are Down' was mainly responsible for alerting the British government to the real significance of microchip technology. This may say more about the British government than about broadcasting if it is true, but certainly causal viewers can have their awareness raised by such programming.

Broadcasting can be the cheapest way to get large quantities of audio-visual learning materials to large numbers of people scattered throughout the country. This is particularly important for schools. Even if schools have an abundant provision of video-recording and playback equipment, broadcasting and local recording is the cheapest way to distribute large quantities of audio-visual material. This applies also to computer-based audio-visual media which can be broadcast within a radio bandwidth.

Educational broadcasting can be multi-purpose, not only in raising awareness but also in presenting an alternative source of programming to that available on

the general service, an alternative sometimes desperately needed. For those who otherwise would be left with a choice between Nationwide, Crossroads and a rock music programme, an Open University programme on the economics of oil-pricing can provide a welcome alternative. The cultural argument for educational programmes only holds if the programmes are comprehensible to a general public and available at times when most people are able to watch them.

Having set out some of the special advantages of broadcasting for education, there is still much that needs to be done to make it more effective:

It should be permissible to record selected general broadcast programmes and series, so that they can be used in schools and colleges and for adult education courses. This means easing copyright and royalty agreements on general programmes for strictly non-profit, educational purposes, Support materials for schools and adults using pictures and materials from selected general programmes and other sources should also be prepared, either by the existing publication departments in broadcasting organisations, or by external agencies with particular interest in the series. Broadcast announcements before and following the programmes should be made indicating the availability of support materials and permission to record for educational purposes.

The value of such general programmes and series would be enhanced if there was liaison between the production team and appropriate educational agencies or voluntary organisations from an early stage. Easing copyright and royalty restrictions would not mean loss of income for artists and performers in general programmes since at the moment no income is generated by educational users, unless programmes are available for purchase, which many are not.

Serious considerations needs to be given to the appropriateness of current broadcast provision to schools. Continuous broadcast programmes of a set length are not necessarily the best way to use television or radio. Self-standing programmes, even when recorded on cassette, are difficult to integrate with other teaching activities. More useful to teachers will be integrated multi-media packages with varying combinations of print, video, microcomputer material and audio-cassettes. This requires broadcasters to join with other agencies in the design of such components, as equal members in a team.

Improved and extended training of teachers in the use of media is becoming desperately urgent. Saunders carried out a thorough study of training for use of broadcasting in schools provided by eleven initial teacher-training centres and a variety of in-service courses in five countries in the south of England. She found that training was on the whole inadequate and misdirected. Teachers after training frequently used broadcasting incompetently and unimaginatively, yet broadcast materials is if anything being used more than ever. Cassettes offer greater opportunities for more effective use as integrated components in a carefully planned curriculum. The range of media available is rapidly widening, and teachers will need to know not only how to use the different media available but when and why the should use each medium. Teacher training in this area needs to be more widely available and better designed.

This is perhaps the most important and certainly the most difficult area for improvement. Robinson provides an excellent account of the development of partnership. His account shows increasing co-operation and a genuine willingness on the part of educational broadcasters to work with other agencies. The BBC and the IBA have for many years had advisory panels for schools and adult

education. There are examples in this book of highly successful co-operative ventures. But nevertheless there are wide-spread criticisms of broadcasting arrangements from other agencies wishing to make full use of the promotional opportunities of broadcasting.

Too often other agencies are consulted too late after all the major decisions have been made by the broadcasting organisation. Too often the approach of broadcasters is paternalistic and condescending. This kind of criticism can be found from teachers, programmes advisers, voluntary agencies and even from academics at the Open University where the partnership arrangement is formalised. Such tensions are inherent in the way broadcasting is structured, financed and controlled.

Broadcasting organisations in Britain have full control over both production and transmission, with the exception of Channel 4. While Channel 4 will take programmes produced by independent companies, it remains full editorial control over what it will broadcast. Only the BBC, and the IBA through the commercial companies, and Channel 4, have the right to broadcast television programmes. Even if another agency is willing to pay for production and transmission, it cannot insist on the right to broadcast.

Effectively, the State has allowed broadcasting to be placed in the trust of professional broadcasters who represent non one except themselves. This may be preferable to political control but it is surely not the only alternative. The consequence is that voluntary agencies or educational institutions who with to use broadcasting as a means of communications in a manner of their own choosing cannot do so in Britain. Broadcasting organisations may decide to do 'something' in an area of interest to a voluntary agency or educators, but when

and how that something is done is entirely at the discretion of the broadcasters. Under such circumstances, broadcasters can only be paternalistic and condescending to other agencies, no matter how well-meaning or courteous they may be. These are of course no justification for changing the present arrangements if most people are satisfied that they are working well. Few educators, though, are really happy with the present arrangements.

We believe, broadcast frequencies are a national asset. This is recognised in the powers of the Home Secretary, who allocates the frequencies and regulates broadcasting. These frequencies no more belong to Granada Television or the BBC than does the River Thames or the MI. They are held in trust for all of us by the broadcasting agencies, and if the arrangements are no longer satisfactory, they should be changed. What could be done to ensure a more equal partnership between broadcasting and education? Probably very little in the current political climate.

The power of the broadcasting organisations is too strong and the will of the people and the interest of Parliament too weak. The simplest method would be for the government to set up a statutory body which would have powers to et educational and social action priorities for broadcasting, and to require from the broadcasting organisations certain minimal arrangements-such as adequate transmission facilities.

In practice, such a body would operate through a set of committees very similar to the existing advisory bodies established by the broadcasters themselves. In any case, the membership of the current advisory councils needs to be extended or anew council established, to ensure representation of the interests of voluntary agencies which are inadequately represented at the moment.

The advantages of a statutory body is that members would be appointed independently, and, more importantly, it would be in a position to insist on the use of certain transmission facilities for educational and social action purposes.State regulation of educational broadcasting will be anathema to many in Britain, particularly in the broadcasting world. The realistic alternative, though is the end of educational broadcasting altogether. The whole concept of public service broadcasting is under serious attack in Britain, due mainly to increased competition from unregulated video-cassette use and new cable and satellite services.

Public service no longer appears to be fashionable. Populism, commercial profit and the maximisation of audience rating seem to be the main concerns. Working through some of the accounts of projects and research reports. We had the feeling that the only reason why some broadcast organisations do anything in the other agencies from gaining access to broadcasting frequencies. Maybe everyone in the long run would be happier if broadcasting organisations withdrew completely from specific educational activities. Broadcasting and education make an uneasy alliance. While often sharing common aims, broadcasters and teachers have different perspectives. Education is at the best of times a difficult and an ill-defined process, the values of broadcasting are not identical to those of education.

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Dr. S. Venkataiah received his education from Osmania University, Hyderabad. Having brilliant academic career, winning honours and awards in India and abroad, Dr. Venkataiah is the author of many research papers published in reputed Indian as well as Foreign journals/periodicals.

He has been writing on curriculum development and its allied issues for last fifteen years. As an academician his contribution in the field of education is widely acclaimed.

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  — *Gupta, N.L.*
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  — *Hall, G.S.*
- Encyclopaedia of Educational Learning and Teaching Technology
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  (Set of 5 Vols.) — *Vashist, S.R.*